Allen-Bradley

POINT I/O Digital and Analog Modules and POINTBlock I/O Modules

Cat. No. 1734-XX and 1734D-XX

User Manual

Rockwell Automation

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Allen-Bradley be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

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Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard:

WARNING

Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION

Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

ATTENTION

Environment and Enclosure

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

This equipment is supplied as "open type" equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1 ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

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- product technical training
- warranty support
- support service agreements

Technical Product Assistance

If you need to contact Rockwell Automation for technical assistance, please review the troubleshooting information first. If the problem persists, then call your local Rockwell Automation representative.

Your Questions or Comments on this Manual

If you find a problem with this manual, please notify us of it on the enclosed “How Are We Doing” form at the rear of this document. The form can also be found on the web at .

Summary of Changes

This publication contains new and revised information not included in the last release.

New Information

The following new modules have been added to this publication:

Module	Catalog Number
Analog Voltage Input Module	1734-IE2V
Analog Voltage Output Module	1734-OE2V
220V ac Input Module	1734-IM2
120/220V ac Output Module	1734-OA2
120V ac Input Module	1734-IA2
POINTBlock 16 ac Input Module	1734D-IA16
POINTBlock 16 dc Input Module	1734D-IB16

In addition, Appendix B, Default Data Maps, has been added.

Revised Information

Various additional information has been updated as necessary to more fully explain certain procedures.

Change Bars

The areas in this manual which are different from previous editions are marked with change bars (as shown to the right of this paragraph) to indicate the addition of new or revised information.

About This User Manual

Purpose of This Manual

This manual describes how to install, configure and troubleshoot your POINT I/O modules.

For information about:	See:
Introducing the POINT I/O Modules	Chapter 1
Installing the POINT I/O Modules	Chapter 2
How to Configure POINT I/O Modules	Chapter 3
POINT I/O Module Status and Input Data	Chapter 4
Calibrating Your Analog Modules	Chapter 5
Troubleshooting with the Indicators	Chapter 6
Specifications	Appendix A
Default Data Maps	Appendix B

Who Should Use This Manual

You must be able to use RSNetworx software or similar configuration software to set up and calibrate these modules. You must have the capability to download and use Electronic Data Sheet (EDS) files.

We assume you know how to do this in this manual. If you do not, refer to your software documentation or online help before attempting to use these modules.

Related Products and Documentation

The following table lists related 1734 products and documentation.

Description	Cat. No.	Publication
POINT I/O Technical Data	1734-Series	1734-TD002
Sink Input Module Installation Instructions	1734-IB2, -IB4	1734-IN051
Source Output Module Installation Instructions	1734-IV2, -IV4	1734-IN052
220V ac Input Module Installation Instructions	1734-IM	1734-IN008
120V ac Input Module Installation Instructions	1734-IA2	1734-IN010
120/220V ac Output Module Installation Instructions	1734-OA2	1734-IN009
Analog Current Input Module Installation Instructions	1734-IE2C	1734-IN053

Description	Cat. No.	Publication
Analog Current Output Module Installation Instructions	1734-OE2C	1734-IN054
Analog Voltage Input Module Installation Instructions	1734-IE2V	1734-IN001
Analog Voltage Output Module Installation Instructions	1734-OE2V	1734-IN002
Very High Speed Counter Module Installation Instructions	1734-VHSC24	1734-IN003
Very High Speed Counter Module Installation Instructions	1734-VHSC5	1734-IN004
5V Encoder/Counter Module Installation Instructions	1734-IJ	1734-IN005
24V Encoder/Counter Module Installation Instructions	1734-IK	1734-IN006
Relay Output Module Installation Instructions	1734-OW2	1734-IN055
Protected Output Module Installation Instructions	1734-OB2E, -OB4E	1734-IN056
DeviceNet Communication Interface Installation Instructions	1734-PDN	1734-IN057
POINT I/O 24V dc Expansion Power Supply Installation Instructions	1734-EP24DC	1734-IN058
Field Potential Distributor Installation Instructions	1734-FPD	1734-IN059
General Installation Instructions	All 1734	1734-IN510
Wiring Base Assembly Installation Instructions	1734-TB, -TBS	1734-5.11
Wiring Base Assembly Installation Instructions	1734-TB3, -TB3S	1734-IN013A
Cold Junction Wiring Base Assembly Installation Instruction	1734-TBCJC	1734-IN583
8 dc Input/8 Output Module Installation Instructions	1734D-IB8XOB8	1734-5.20
8 dc Input/8 Relay Output Module Installation Instructions	1734D-IB8XOW8	1734-5.21
8 ac Input/8 OutputModule Installation Instructions	1734D-IA8XOA8	1734-5.22
8 ac Input/8 Relay Output Module Installation Instructions	1734D-IA8XOW8	1734-5.23
16 ac Input Module Installation Instructions	1734D-IA16	1734D-IN001
16 dc Input Module Installation Instructions	1734D-IB16	1734D-IN002

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Introducing the POINT I/O Modules

What This Chapter Contains

This chapter introduces the POINT I/O digital and analog modules:

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Digital Modules

The 1734 digital modules consist of:

- 2 and 4 sink input modules (1734-IB2, -IB4)
- 2 and 4 source input modules (1734-IV2, -IV4)
- 2 and 4 protected source output module (1734-OB2E, -OB4E)
- 2 relay output module (1734-OW2)
- 2 ac input module (1734-IA2)
- 2 120/240V dc input module (1734-IM2)
- 2 ac output module (1734-OA2)

The 1734D POINTBlock modules consist of:

- 8 dc input and 8 dc output (1734D-IB8XOB8 and -IB8XOB8S)
- 8 dc input and 8 relay output (1734D-IB8XOW8 and -IB8XOW8S)
- 8 ac input and 8 ac output (1734D-IA8XOA8 and -IA8XOA8S)
- 8 ac input and 8 relay output (1734D-IA8XOW8 and -IA8XOW8S)
- 16 dc input (1734D-IB16 and -IB16S)
- 16 ac input (1734D-IA16 and -IA16S)

Input Modules

DC inputs are 24V dc nominal, with an input range of 10-28.8 V dc, and are offered with 2 or 4 sinking or sourcing style inputs. The 1734-IB2 and -IB4 input modules are sinking modules. The 1734-IV2 and -IV4 input modules are sourcing input modules. Features of all input modules include:

- autobaud (will match baud of existing devices on the network)
- selectable input filter times (0 to 65ms with 1ms default)
- sequential auto addressing

Complete specifications are shown in Appendix A.

AC inputs are 120V ac nominal with an input range of 85 to 132V ac with sinking inputs. Features of the ac input modules include:

- autobaud (will match baud of existing devices on the network)
- selectable input filter times (0 to 65ms with 1ms default)
- sequential auto addressing

Output Modules

The 1734-OB2E and -OB4E DC output modules have current limited sourcing outputs, which source a positive voltage of up to 1A with respect to their dc return. The outputs are not isolated from each other. Dc outputs are 24V dc nominal, with a range of 10-28.8V dc. A number of output diagnostic features are incorporated to assist in troubleshooting. The 1734-OB2E and -OB4E feature:

- output diagnostics
- current limited outputs
- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in Appendix A.

The 1734-OA2 ac output module has current limited sourcing outputs, which source a positive voltage of up to 0.75A per channel. The outputs are not isolated from each other. Ac outputs are 120/220V ac nominal, with a range of 74-264V dc. A number of output diagnostic features are incorporated to assist in troubleshooting. The 1734-OA2 features:

- output diagnostics
- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in Appendix A.

Relay Output Module

The 1734-OW2 relay outputs are Type A (Normally Open), which sink or source a current with respect to power or return. Contact outputs are isolated from each other. Each output is rated 5 to 240V dc/Vrms at 2A (current is load dependant). Features include:

- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in appendix A.

Analog Modules

The 1734 analog modules consist of input modules (1734-IE2C and 1734-IE2V) and output modules (1734-OE2C and OE2V).

The 1734-IE2C Analog Input Module is a two-channel module that converts an analog input current to a digital value. The module resolution is 16 bits across 0-21mA.

The 1734-IE2V Analog Input Module is a two-channel module that converts an analog input voltage to a digital value. The module resolution is 16 bits across -10 to +10V.

The 1734-OE2C Analog Output Module is a two-channel module that converts a digital code to an analog output current. The module resolution is 13 bits across 0-21mA.

The 1734-OE2V Analog Output Module is a two-channel module that converts a digital code to an analog output voltage. The module resolution is 14 bits across -10 to +10V.

Features of the analog modules

The features of the analog modules depend on the type of analog module: input or output.

Features common to both input and output

- Data - The current in and out modules operate in unipolar mode only. The voltage in and out modules operate in unipolar or bipolar modes. Data returned from the module is scaled by the user to any 16 bit signed integer (–32768 to +32767).
- The input modules produce 6 bytes of data in the following format:
  Channel 0 Data (2 bytes)
  Channel 1 Data (2 bytes)
  Channel 0 Status (1 byte)
  Channel 1 Status (1 byte)
- The output modules consume 4 bytes of data in the following format:
  Channel 0 Data (2 bytes)
  Channel 1 Data (2 bytes)
  and produce 2 bytes of data in the following format.
  Channel 0 Status (1 byte)
  Channel 1 Status (1 byte)

- Operational Modes -
  - Current - two modes.
    0 – 20mA
    4 – 20mA. (Default mode)
  - Voltage - two modes.
    0 – 10V (Default mode)
    -10 to +10V.
- Individually set channel mode
- Scaling - conversion to engineering units

Features available on input modules

- Latching alarms - allows low and high alarm status information to be latched when an alarm is set
- Four different alarms are available:
  Low,
  Low Low,
  High
  High High.
- Disable Alarms - disables all channel alarms and faults so they are not reported in the channel status field. There are 4 different alarms available to the user.
- Settable Update Rate - update rate determines how often an input channel is scanned
- Notch Filter - Selectable notch filter for both inputs (50, 60, 250 and 500Hz)
- Digital Filter - sets a time constant

Features available on output modules

- Latching alarms - allows low and high clamp alarm status information to be latched when an alarm is set
- Low and High Clamps - Clamps can be set individually or on a channel basis. When the output value reaches clamp value, a status bit is set, indicating the output has been clamped.
- Disable Alarms - disables all channel alarms and faults so they are not reported in the channel status field
- Fault and Idle mode action - output module users can select what happens to the output if a fault occurs or if the module is in idle mode. The choices are:
  Hold Last State,
  Low Clamp,
  High Clamp
  or a user defined value.

Refer to the following chapters for detailed information on configuring and reading information to/and from discrete and analog input and output modules.

Installing the POINT I/O Modules

About This Chapter

In this chapter, you will learn how to install and wire each of the POINT I/O modules.

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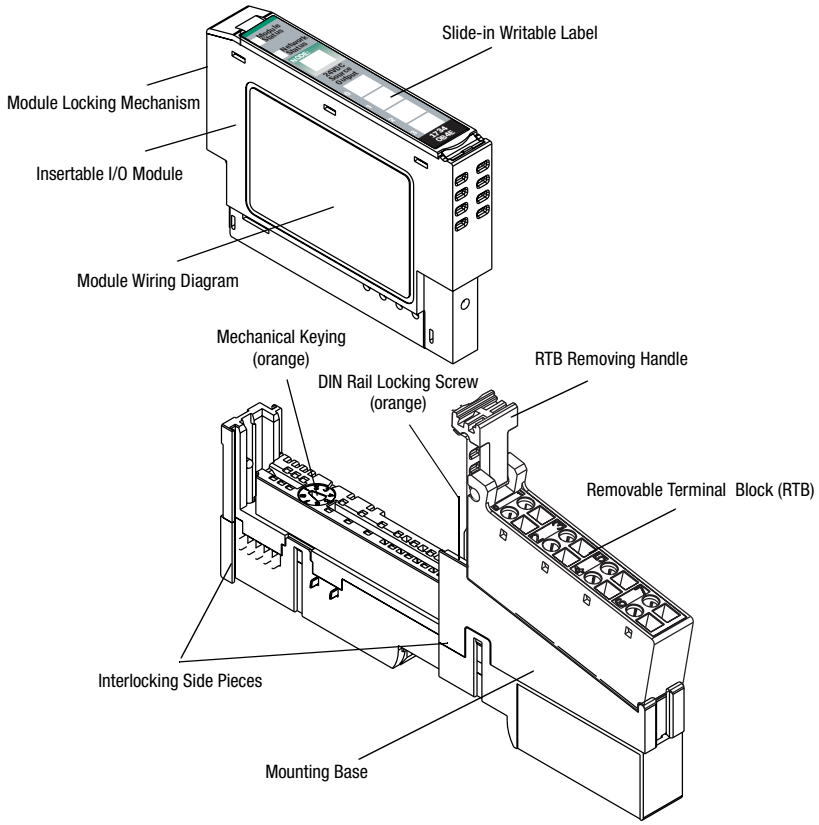
Installing the Mounting Base/ Wiring Base Assembly

The wiring base assembly (1734-TB or -TBS) consists of a mounting base (cat. no. 1734-MB) and a removable terminal block (cat. no. 1734-RTB or -RTBS). You can install the assembly, or just the mounting base. To install the mounting base/wiring base assembly on the DIN rail, proceed as follows.

1. Position the mounting base/wiring base assembly vertically above the installed units (adapter, power supply or existing module).

2. Slide the mounting base down allowing the interlocking side pieces to engage the adjacent module or adapter.



3. Press firmly to seat the mounting base on the DIN rail. The mounting base will snap into place.

4. To remove the mounting base from the DIN rail, remove any installed module (and any module immediately to the right), and use a small bladed screwdriver to rotate the DIN rail locking screw to a vertical position. This releases the locking mechanism. Then lift straight up to remove the mounting base.

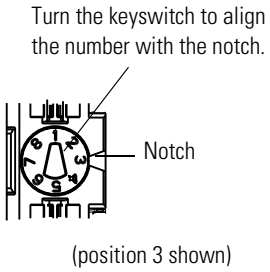
Installing an I/O Module

The module can be installed before, or after base installation. Make sure that the mounting base is correctly keyed before installing the module into the mounting base. In addition, make sure the mounting base locking screw is positioned horizontal referenced to the base.

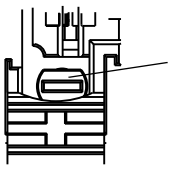
1. Using a bladed screwdriver, rotate the keyswitch on the mounting base clockwise till the number required for the type of module being installed aligns with the notch in the base

.

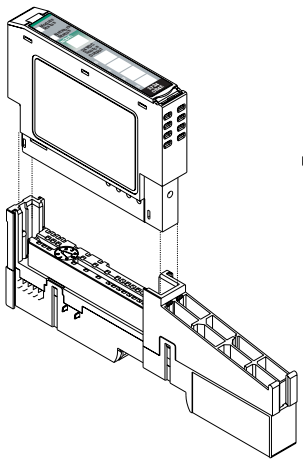
Module	Keyswitch Position	Module	Keyswitch Position
1734-IB2, -IB4	1	1734-IE2V	3
1734-IV2, IV4	1	1734-OE2C	4
1734-OB2E, -OB4E	1	1734-OE2V	4
1734-IA2	8	1734-VHSC5, 24	2
1734-IM2	8	1734IJ	2
1734-OA2	8	1734-IK	2
1734-OW	7	1734-IR2	6
1734-IE2C	3	1734-IT2I	6



2. Make certain the DIN rail locking screw is in the horizontal position. (You cannot insert the module if the locking mechanism is unlocked.)



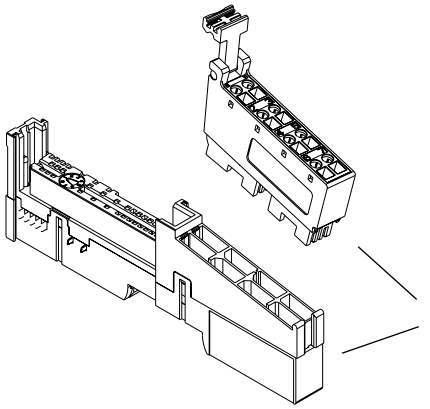
3. Insert the module straight down into the mounting base and press to secure. The module will lock into place.



Installing the Removable Terminal Block

A removable terminal block is supplied with your mounting base assembly. To remove, pull up on the RTB handle. This allows the base to be removed and replaced as necessary without removing any of the wiring. To reinsert the removable terminal block, proceed as follows.

1. Insert the RTB end opposite the handle into the base unit. This end has a curved section that engages with the mounting base.



WARNING

When you connect or disconnect the Removable Terminal Block (RTB) with field side power applied, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

2. Rotate the terminal block into the mounting base until it locks itself in place.

3. If an I/O module is installed, snap the RTB handle into place on the module.

Removing a Mounting Base

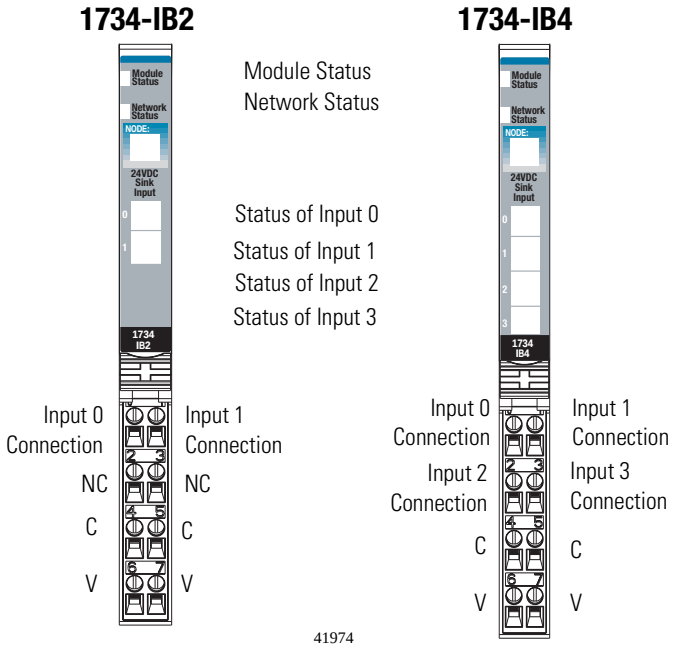
To remove a mounting base, you must remove any installed module, and remove the removable terminal block (if wired).

WARNING

When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

1. Unlatch the RTB handle on the I/O module.
2. Pull on the RTB handle to remove the removable terminal block.
3. Press in on the module lock on the top of the module and pull up on the I/O module to remove from the base.
4. Remove the module to the right of the base you are removing. (The interlocking portion of the base sits under the adjacent module.)
5. Use a small bladed screwdriver to rotate the orange DIN rail locking screw on the mounting base to a vertical position. This releases the locking mechanism.
6. Then lift the mounting base straight up to remove.

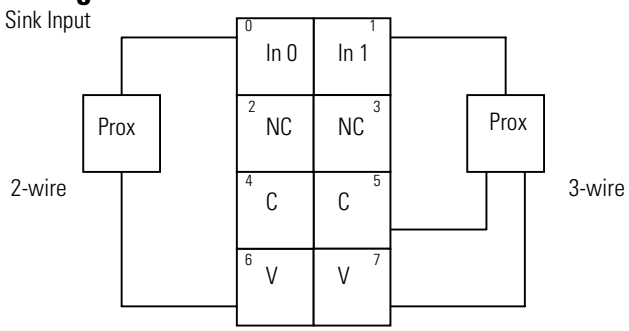
Wiring the Sink Input Modules, Cat. No. 1734-IB2 and -IB4



Input = 0 and 1
NC = No Connection (2 and 3)
C = Common (4 and 5)
V = Supply (6 and 7)

Input = 0, 1, 2 and 3
C = Common (4 and 5)
V = Supply (6 and 7)

Wiring for the 1734-IB2



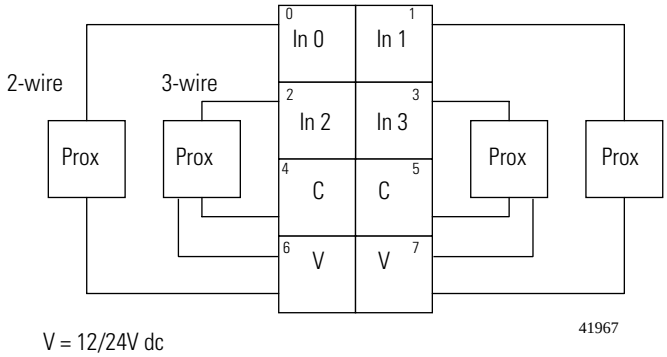
V = 12/24V dc
C = Common

Channel	Input	Common	Voltage
0	0	4	6
1	1	5	7

Connect common on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

Wiring for the 1734-IB4

Sink Input



V = 12/24V dc
C = Common

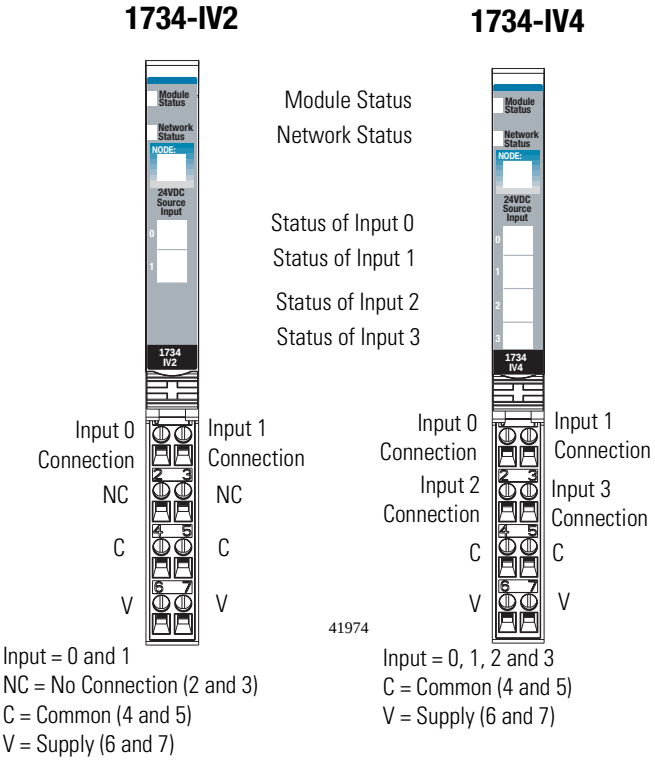
Channel	Input	Common	Voltage
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7

Connect common on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

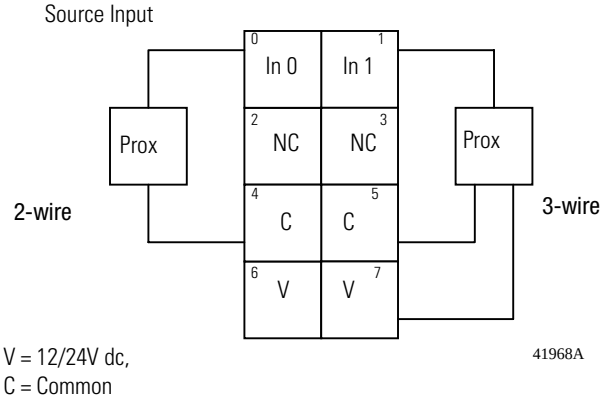
ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Wiring the Source Input Modules, Cat. No. 1734-IV2 and -IV4



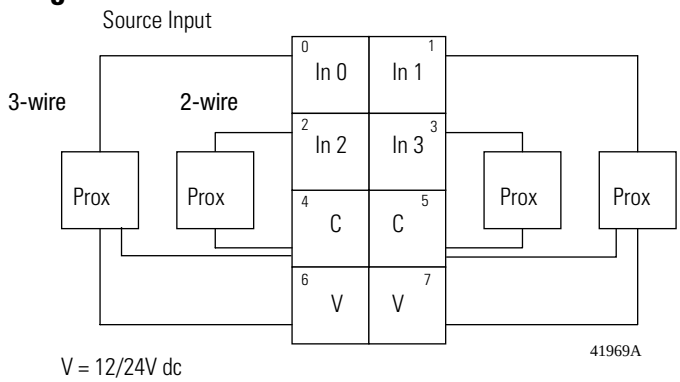
Wiring for the 1734-IV2



	Input Terminal	Common Terminal	Power
Channel 0	0	4	6
Channel 1	1	5	7

Connect power on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

Wiring for the 1734-IV4



V = 12/24V dc
C = Common

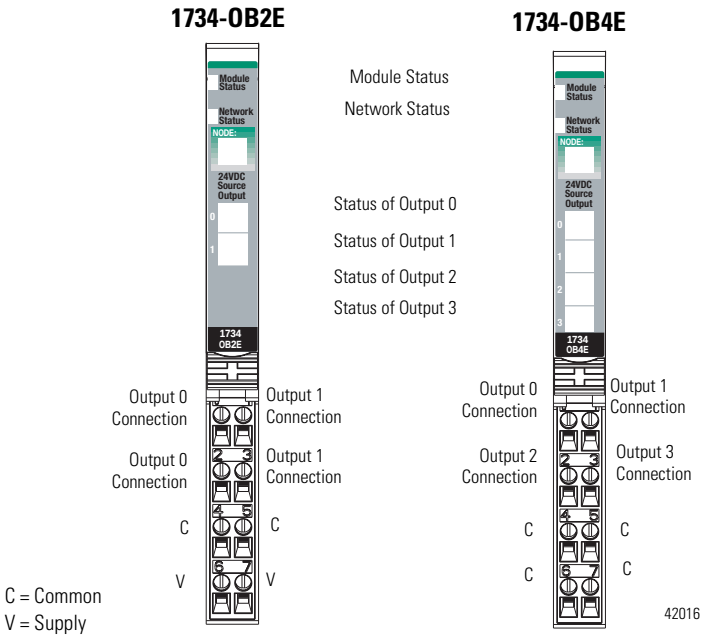
	Input Terminal	Common Terminal	Power
Channel 0	0	4	6
Channel 1	1	5	7
Channel 2	2	4	6
Channel 3	3	5	7

Connect power on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

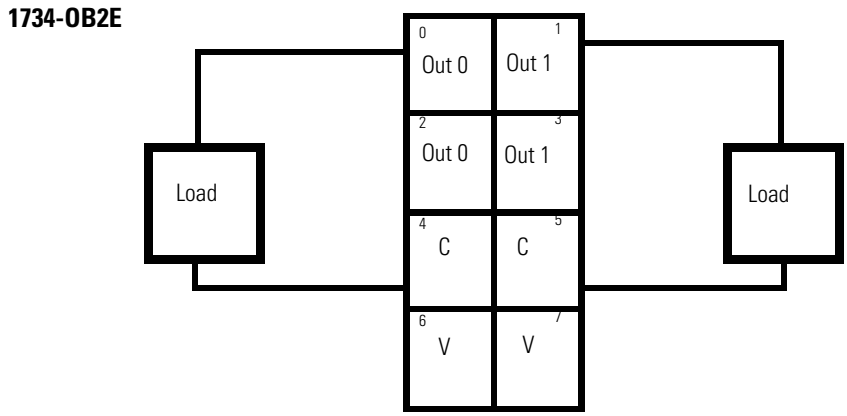
ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Wiring the Protected Output Modules, Cat. No. 1734-OB2E and -OB4E



Wiring for the 1734-OB2E



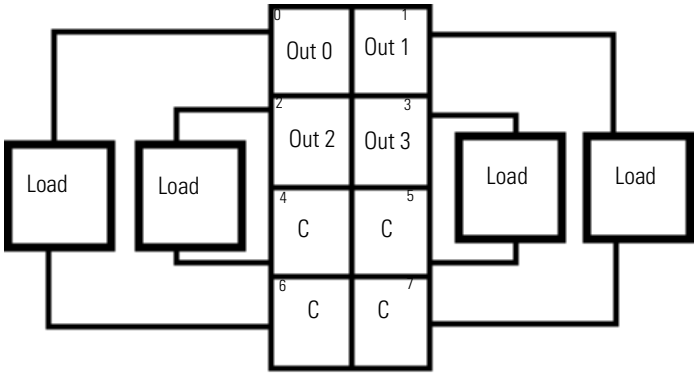
V = 12/24V dc, C = Common
Field power is supplied from internal power bus

	Output Terminal	Common Terminal	Power
Channel 0	0, 2	4	6
Channel 1	1, 3	5	7

Module power is supplied from the internal power bus.

Wiring for the 1734-OB4E

1734-OB4E

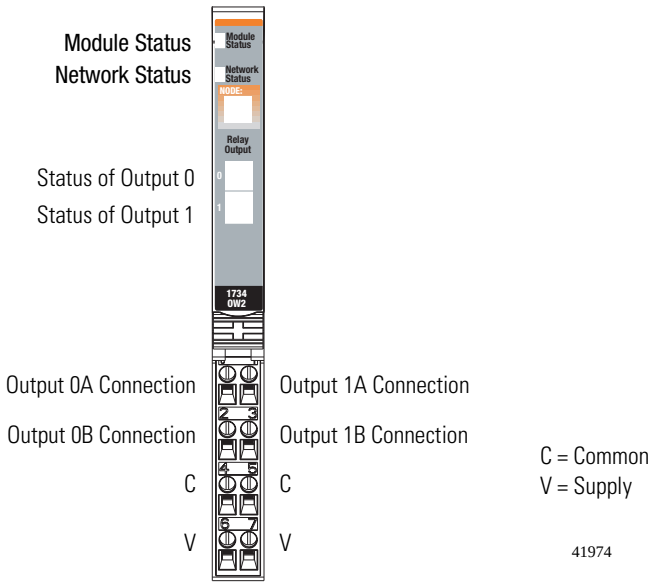


V = 12/24V dc,
C = Common
Field power is supplied from internal power bus

	Output Terminal	Common Terminal	Power
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	

Module power is supplied from internal power bus.

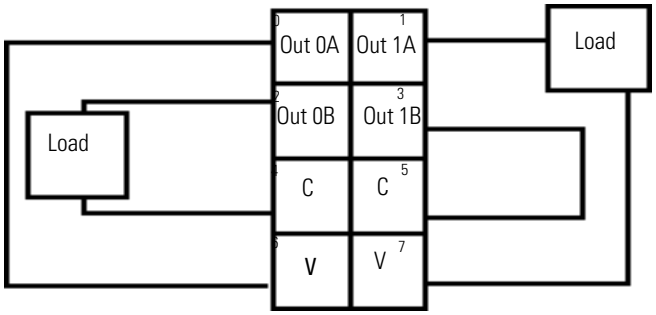
Wiring the Relay Output Module, Cat. No. 1734-OW2



ATTENTION

Relay contacts are not powered by the internal power bus. Load power can be provided by the internal power bus or an external power source.

Wiring for the 1734-OW2 with Load Powered by the Internal Power Bus



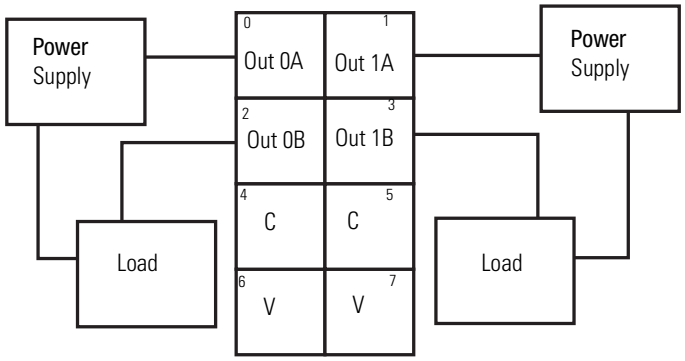
Out = Output channel relay contacts
V = Supply (can range from +5V dc to 240V ac)
C = Common

42018

Channel	Output	Common	Supply
0A	0	4	6
0B	2	4	6
1A	1	5	7
1B	3	5	7

Supply voltage can range from +5V dc to 240V ac, depending on relay load. Power for the module can be provided by the internal power bus.

Wiring for the 1734-OW2 with Load Powered by External Power



Out = Output channel relay contacts
Power Supply = can range from +5V dc to 240V ac
C = Common

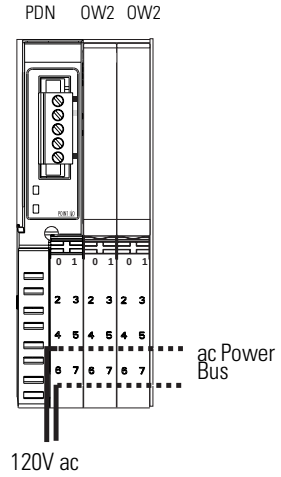
Channel	Output	Common	Supply[1]
0A	0	Not used	Not used
0B	2	Not used	Not used
1A	1	Not used	Not used
1B	3	Not used	Not used

1 Supply voltage can range from +5V dc to 240V ac, depending on relay load. Power for the module can be provided by the external power supply.

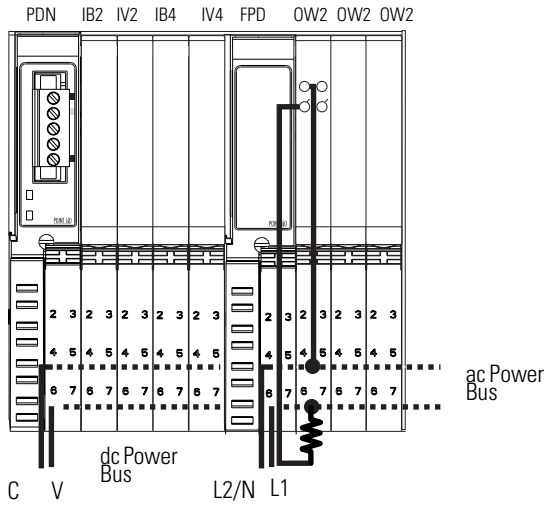
ATTENTION

- Do not attempt to increase load current or wattage capability beyond the maximum rating by connecting 2 or more outputs in parallel. The slightest variation in relay switching time may cause one relay to momentarily switch the total load current.
- Make certain that all relay wiring is properly connected before applying any power to the module.
- Total current draw through the wiring base unit is limited to 10A. Separate power connections to the terminal base unit may be necessary.
- Use the end cap from your adapter or interface module to cover the exposed interconnections on the last mounting base on the DIN rail. Failure to do so could result in equipment damage or injury from electric shock.

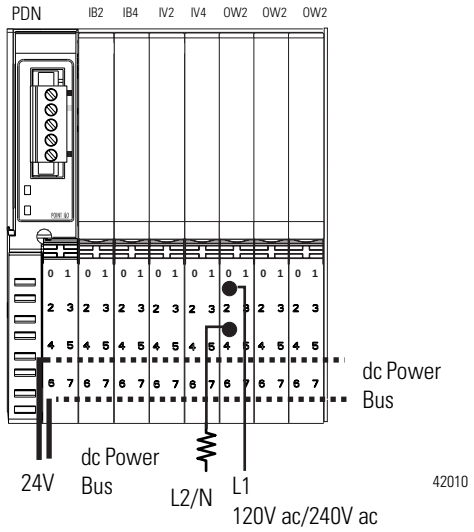
Wiring Relay Modules Using ac Only



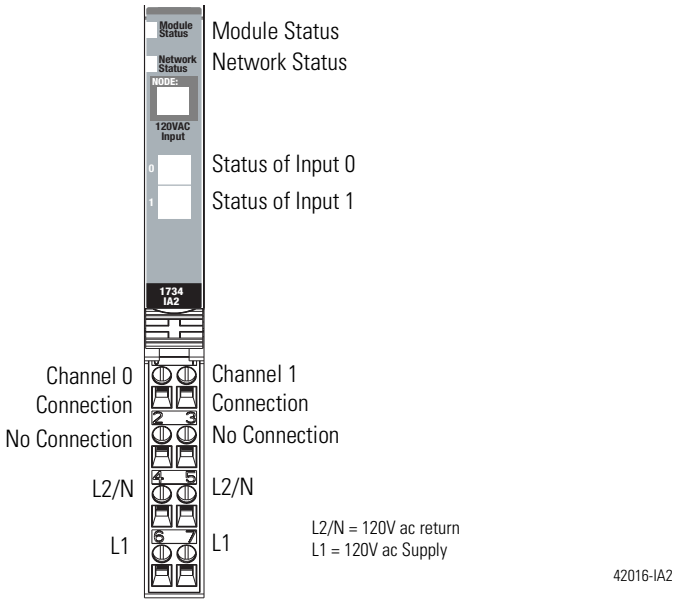
Wiring the Relay Modules Using a 1734-FPD to Create a New ac Power Bus



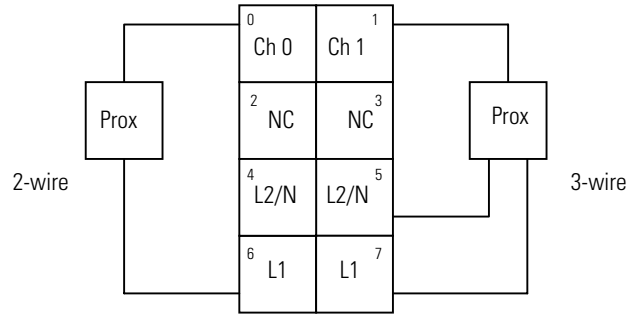
Wiring the Relay Module Using External Wiring for ac Power



Wiring the 120V ac Input Module, Cat. No. 1734-IA2



Wiring for the 120V ac 2 Input Module Cat. No. 1734-IA2



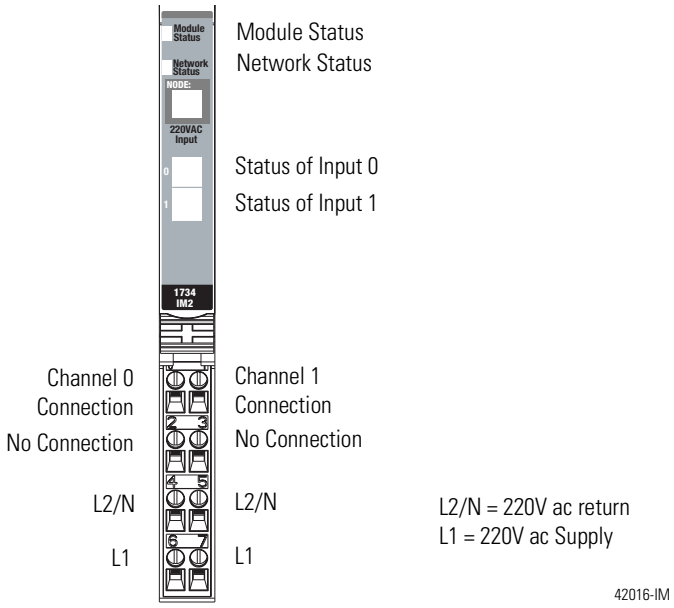
Ch 0 = Channel 0Ch 1 = Channel 1
NC = No connectionL2/N = 120V ac Neutral
L1 = 120V ac

41966B

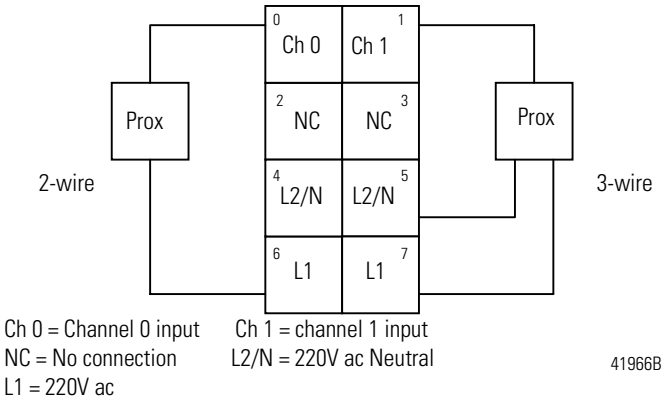
	Input Terminal	Return	Supply
Channel 0	0	4	6
Channel 1	1	5	7

Module power is supplied from the internal power bus.

Wiring the 220V ac Input Module Cat. No. 1734-IM2



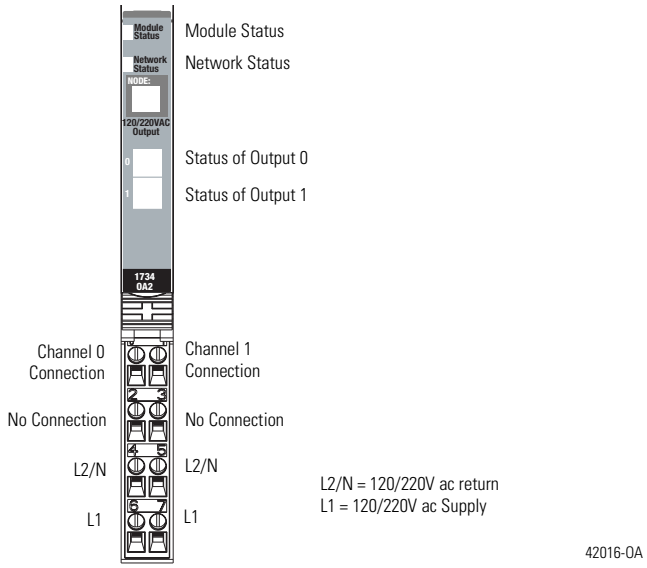
ac 2 Input Module Cat. No. 1734-IM2



	Output Terminal	Return	Supply
Channel 0	0	4	6
Channel 1	1	5	7

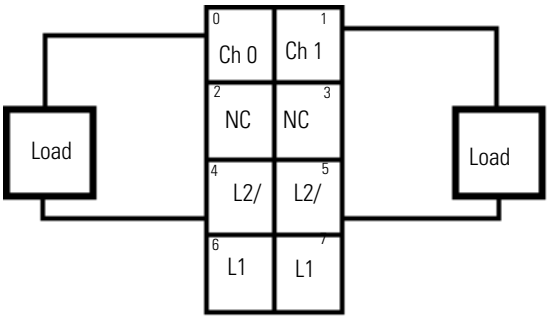
Module power is supplied from the internal power bus.

Wiring the 120/220V ac Output Module Cat. No. 1734-OA2



Wiring for the ac 2 Output Module Cat. No. 1734-OA2

1734-OA2



L1 =120/220V ac supply, L2/N = 120/220V ac return
Ch 0 = Channel 0 Ch 1 = Channel 1
Field power is supplied from internal power bus

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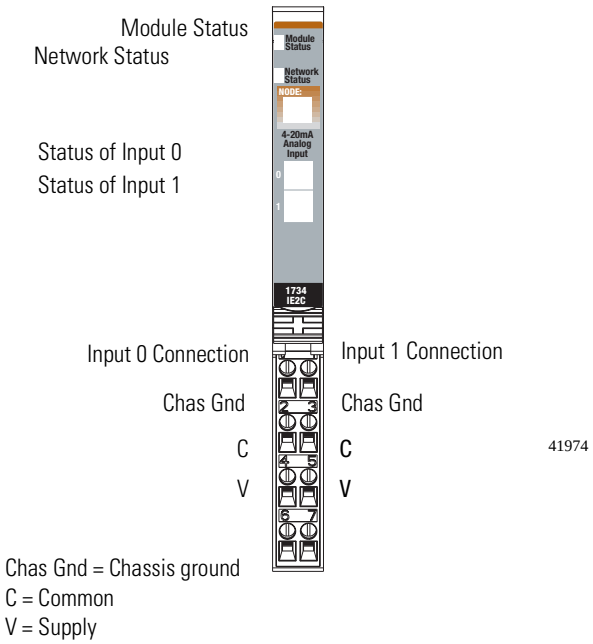
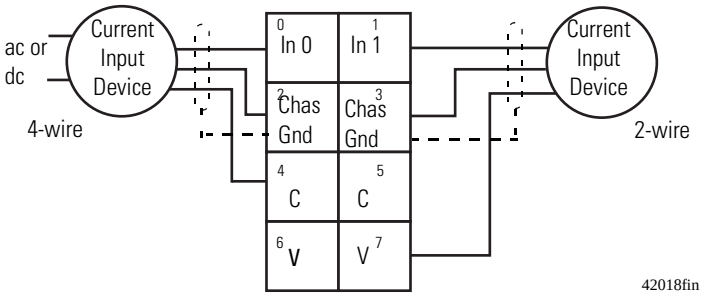
	Output Terminal	Return	Supply
Channel 0	0	4	6
Channel 1	1	5	7

Module power is supplied from the internal power bus.

Wiring the Analog Current Input Module, Cat. No. 1734-IE2C



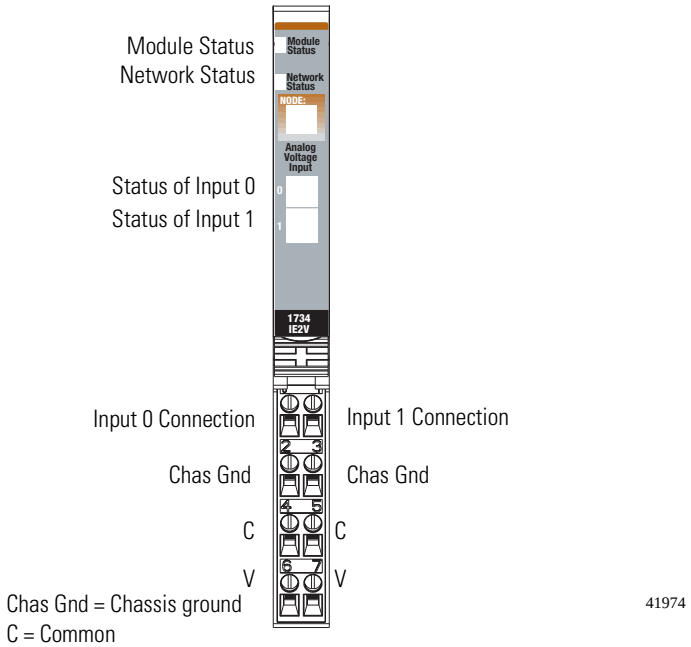
Wiring for the Analog Current Input Module, Cat. No. 1734-IE2C



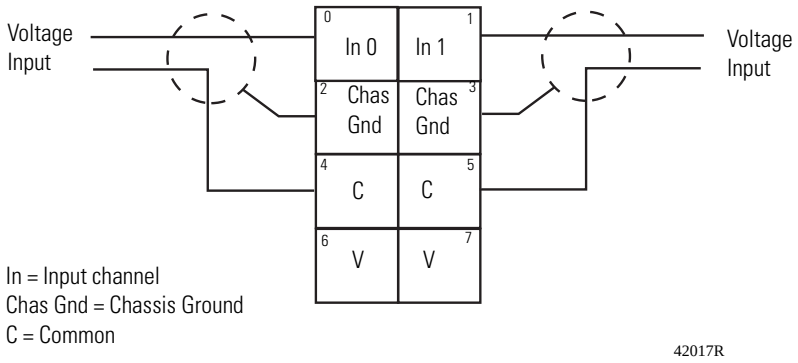
In = Input channel
Chas Gnd = Chassis Ground
C = Common
V = 12/24V dc supply

Channel	Current Input	Chassis Ground	Common	Voltage
0	0	2	4	6
1	1	3	5	7
12/24V dc is provided by the internal power bus.				

Wiring for the Analog Voltage Input Module, Cat. No. 1734-IE2V

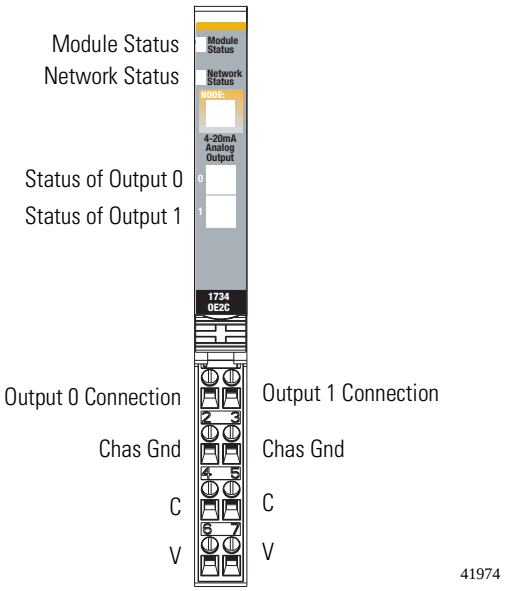


Wiring for the Analog Voltage Input Module, Cat. No. 1734-IE2V



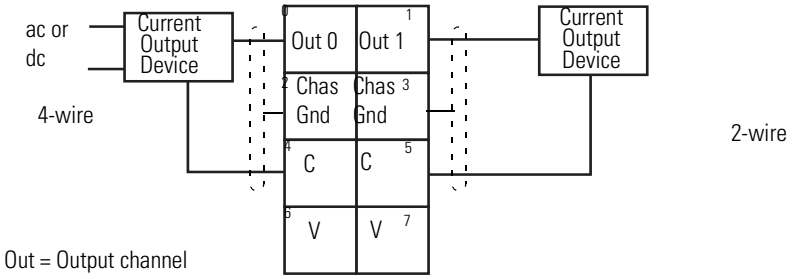
Channel	Voltage Input	Chassis Ground	Common	Supply
0	0	2	4	6
1	1	3	5	7
12/24V dc is provided by the internal power bus.				

Wiring the Analog Current Output Module, Cat. No. 1734-OE2C



ChasGnd = Chassis ground
C = Common
V = Supply

Wiring for the Analog Current Output Module, Cat. No. 1734-OE2C

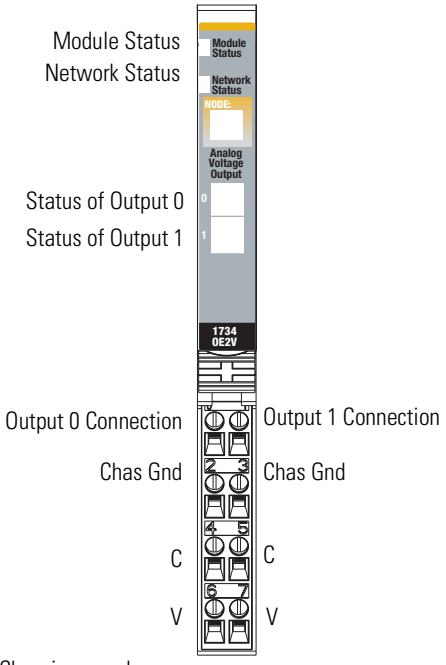


Out = Output channel
Chas Gnd = Chassis ground
C = Common
V = Not used

Channel	Current Output	Common	Chassis Ground	Supply
0	0	4	2	6
1	1	5	3	7

12/24V dc power is provided by the internal power bus.

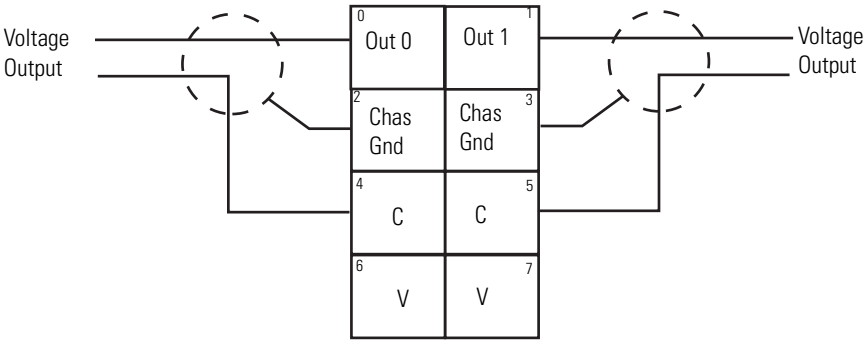
Wiring for the Analog Voltage Output Module, Cat. No. 1734-OE2V



ChasGnd = Chassis ground
C = Common
V = Supply

41974

Wiring for the Analog Voltage Output Module, Cat. No. 1734-OE2V



Out = Output channel
Chas Gnd = Chassis ground
C = Common
V = 12/24V Supply

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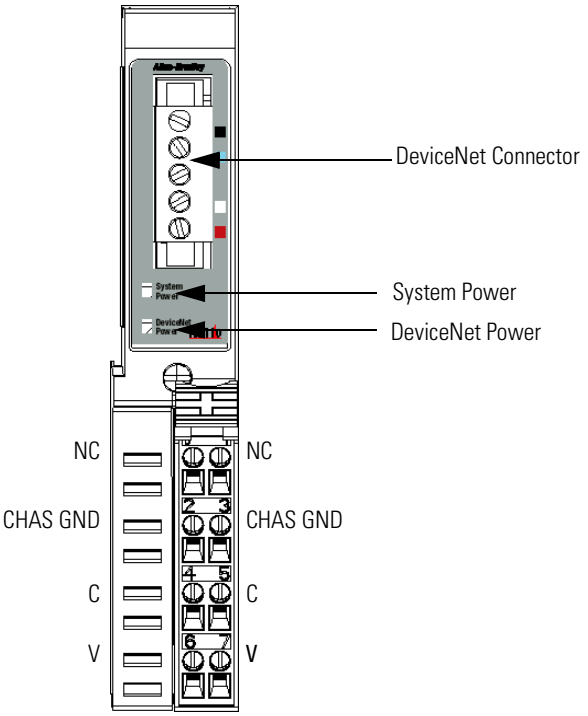
Channel	Voltage Output	Chassis Ground	Common	Supply
0	0	2	4	6
1	1	3	5	7

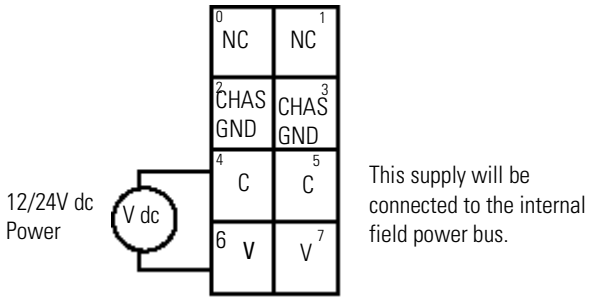
12/24V dc power is provided by the internal power bus.

Wiring the Communication Interface Module, Cat. No. 1734-PDN

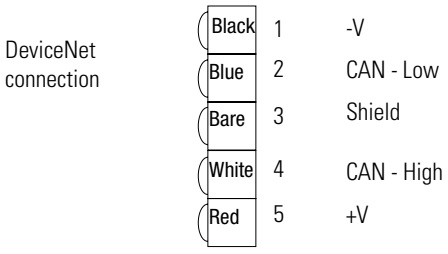


NC = No Connection
CHAS GND = Chassis Ground
C = Common
V = Supply

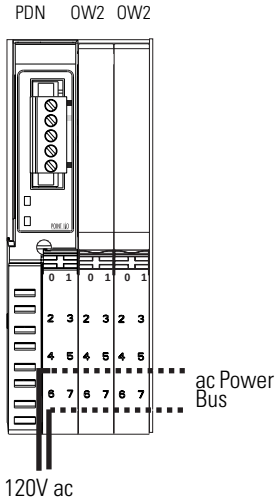
Wiring the 1734-PDN



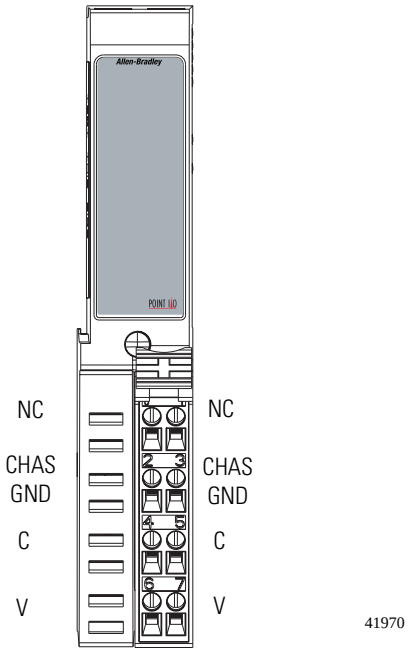
NC = No Connection
C = Common
CHAS GND = Chassis Ground
V = Supply



Wiring the Communication Interface Module for ac Modules Only

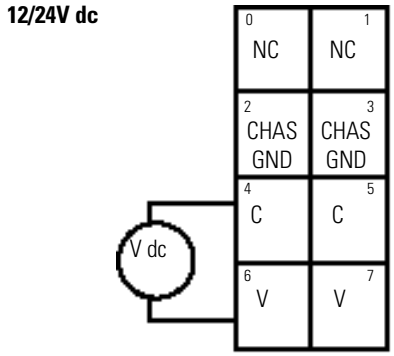


Wiring the Field Potential Distributor Module, Cat. No. 1734-FPD



NC = No Connection CHAS GND = Chassis Ground
C = Common V = Supply

Wiring the 1734-FPD for 12/24V dc



This supply will be connected to the internal power bus.

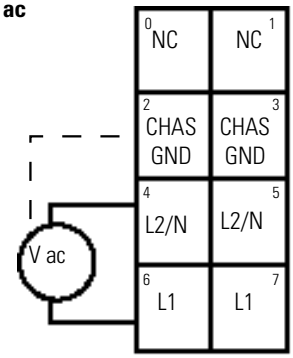
V = 12/24V dc, C = Common
CHAS GND = Chassis ground

Connect	Terminal
+V dc	6
-V dc	4
Chas Gnd	2

12/24V dc becomes the internal power bus for modules to the right.

Wiring the 1734-FPD for 120/240V ac

120/240V ac



This supply will be connected to the internal power bus.

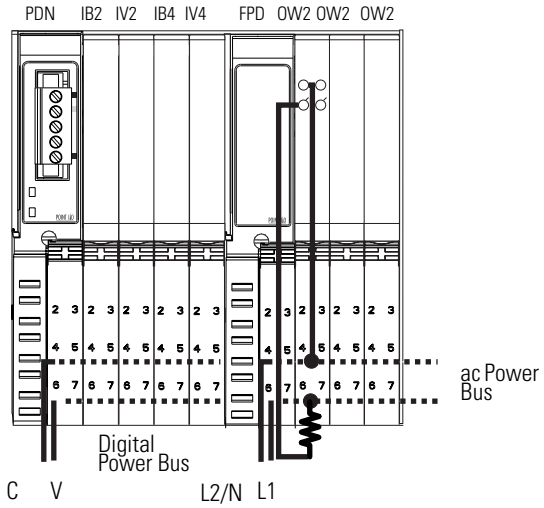
L2/N = Neutral, L1 = 120/240V ac
CHAS GND = Chassis ground

Connect	Terminal
L1	6
L2/N	4
Chas Gnd	2

120/240V dc becomes the internal power bus for modules to the right.

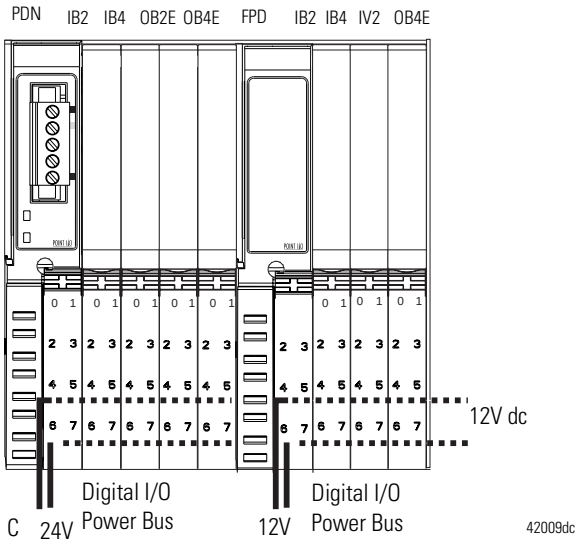
Creating a New ac Power Bus Using a 1734-FPD Module

This configuration changes power bus voltage for ac modules.



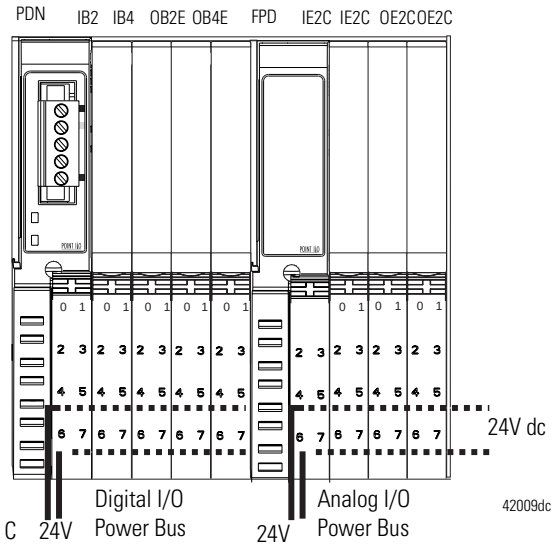
Wiring Using a 1734-FPD to Create a New DC Power Bus

This configuration changes power bus voltage for 12/24V dc systems.



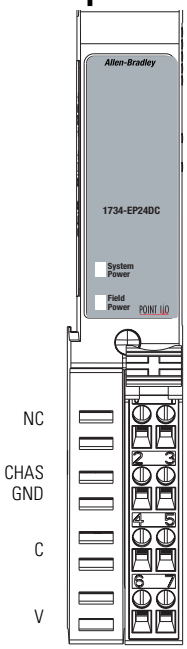
Wiring Using a 1734-FPD to Create a New Analog Power Bus

This configuration isolates noisy digital I/O power from sensitive analog I/O power.



Wiring the Expansion Power Supply, Cat. No. 1734-EP24DC

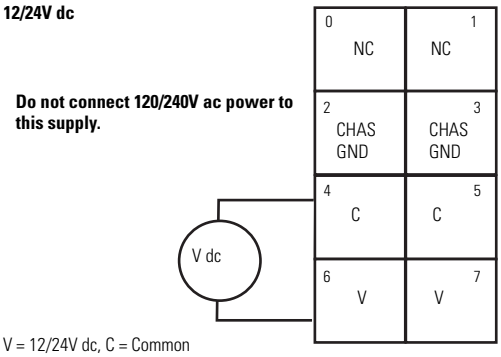
Wiring the Expansion Power Supply



NC = No Connection
CHAS GND = Chassis Ground
C = Common
V = Supply

41970

12/24v dc Wiring



V = 12/24V dc, C = Common
CHAS GND = Chassis ground

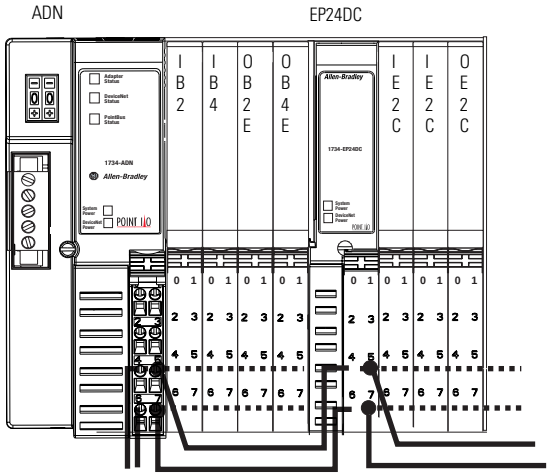
EP24

Connect	Terminal	Terminals (for continuing power)
+V dc	6	7
-V dc	4	5
Chas Gnd	2	3
12/24V dc becomes the internal power bus for modules to the right.		

ATTENTION

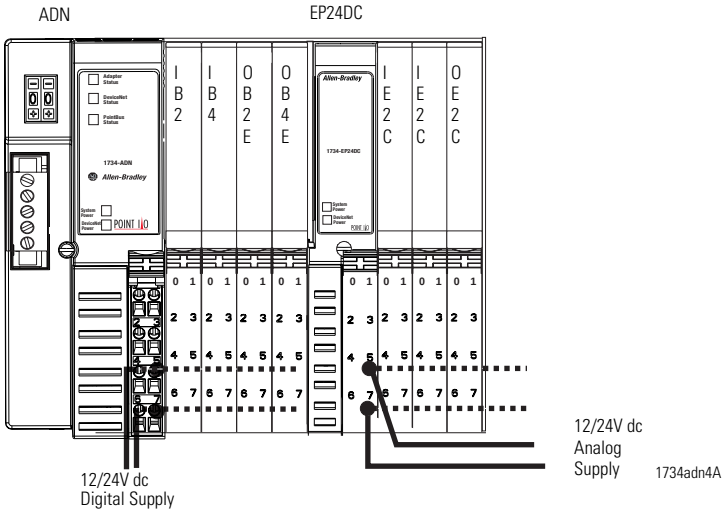
Use the 1734-EP24DC expansion power supply only with Adapter Class products.

Example of continuing power

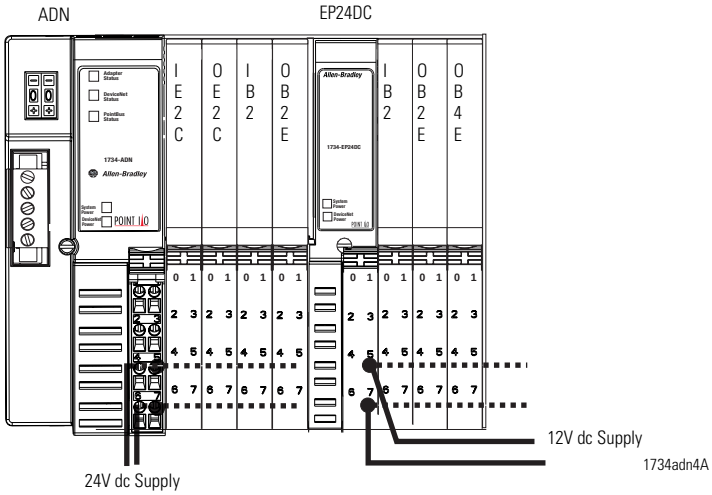


IMPORTANT The 1734-EP24DC expansion power supply can **only** be used with POINT I/O adapters.

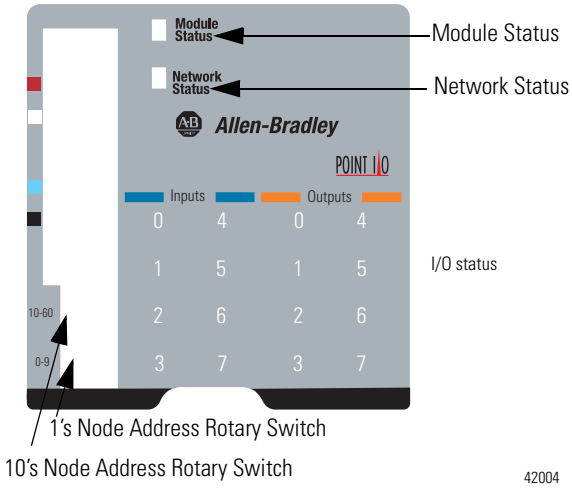
Example of Functional Partitioning



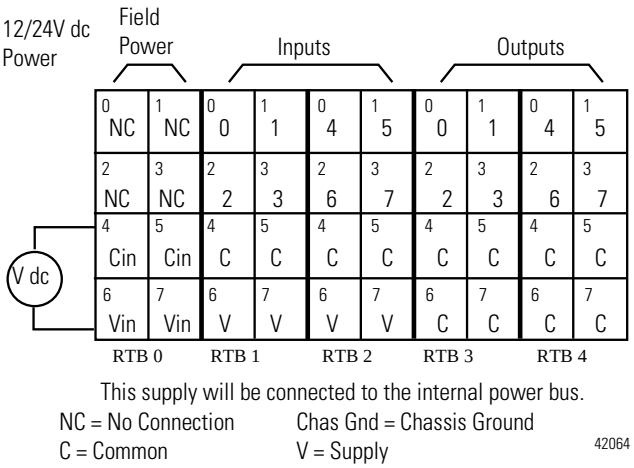
Example of Logical Partitioning



Wiring the POINTBlock 8 dc In/8 dc Out Module Cat. No. 1734D-IB8XOB8

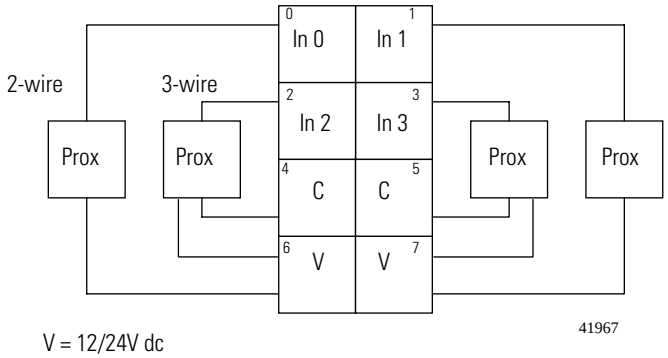


Wiring the 8 Input/8 Output Module


12/24V dc Power
Field Power
Inputs
Outputs
V dc
0 NC 1 NC 0 0 1 1 0 4 1 5 0 0 1 1 0 4 1 5
2 NC 3 NC 2 2 3 3 2 6 3 7 2 2 3 3 2 6 3 7
4 Cin 5 Cin 4 C 5 C 4 C 5 C 4 C 5 C 4 C 5 C
6 Vin 7 Vin 6 V 7 V 6 V 7 V 6 C 7 C 6 C 7 C
RTB 0
RTB 1
RTB 2
RTB 3
RTB 4
This supply will be connected to the internal power bus.
NC = No Connection
Chas Gnd = Chassis Ground
C = Common
V = Supply
42064

Input Wiring

Sink Input



V = 12/24V dc
C = Common

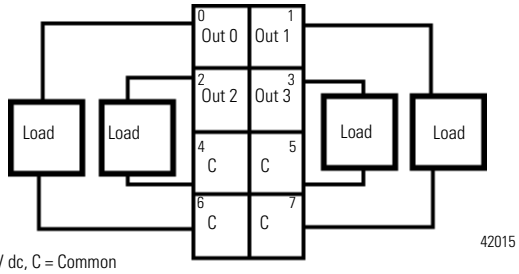
Channel	Input Terminal	Common	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7

Connect common on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring



V = 12/24V dc, C = Common
Field power is supplied from internal power bus

	Output Terminal	Common Terminal	Power
Remote Termination Block 3			
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Remote Termination Block 4			
Channel 4	0	6	
Channel 5	1	7	
Channel 6	2	4	
Channel 7	3	5	
Module power is supplied from the internal power bus.			

ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Outputs are electronically protected to 0.75A. Module outputs are selectable for latched mode or auto-reset mode. (Latched/auto reset is set by module, not by individual channel.) Each channel is assigned a bit in the data table to indicate the faulted condition. Outputs in the latched mode can only be reset with a user command to the module.

Latch Mode Functionality

State	Indication	Error Bit
Off	Dark	0
On	Yellow	0
Faulted/On	Red	1
Faulted/Off	Flashing Red	1

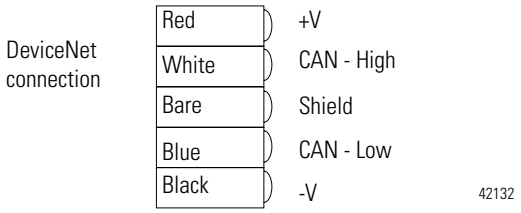
To reset an output, the reset bit for the output can be set, or the output bit must be cycled off/on.

Auto Retry Mode Functionality

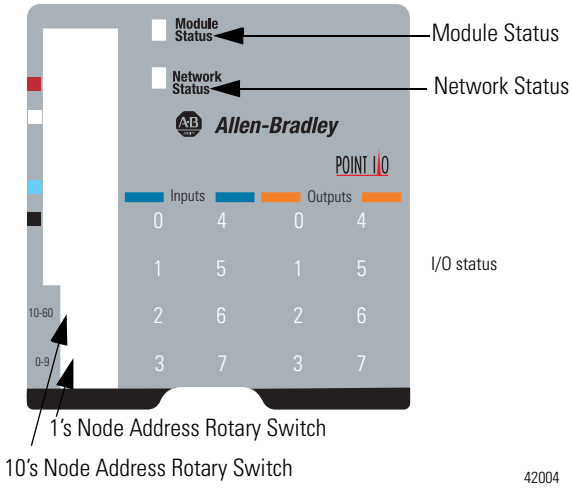
State	Indication	Error Bit
Off	Dark	0
On	Yellow	0
Faulted/On	Red	1
Faulted/Off	Flashing Red	1

In auto retry, the output will recover once the fault is removed.

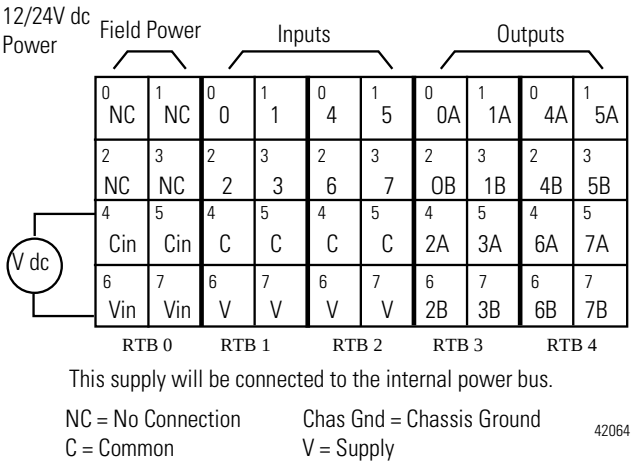
DeviceNet Connector Wiring



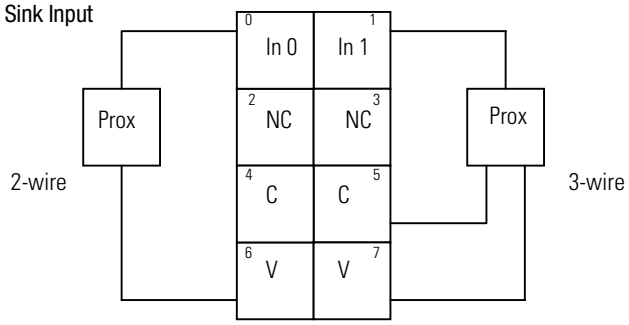
Wiring the POINTBlock 8 dc In/8 Relay Out Module Cat. No. 1734D-IB8XOW8



Wiring the 8 Input/8 Relay Output Module


12/24V dc Power
Field Power
Inputs
Outputs
V dc
0 NC 1 NC 0 0 1 1 0 4 1 5 0 0A 1 1A 0 4A 1 5A
2 NC 3 NC 2 2 3 3 2 6 3 7 2 0B 3 1B 2 4B 3 5B
4 Cin 5 Cin 4 C 5 C 4 C 5 C 4 2A 5 3A 4 6A 5 7A
6 Vin 7 Vin 6 V 7 V 6 V 7 V 6 2B 7 3B 6 6B 7 7B
RTB 0
RTB 1
RTB 2
RTB 3
RTB 4
This supply will be connected to the internal power bus.
NC = No Connection
C = Common
Chas Gnd = Chassis Ground
V = Supply
42064

Input Wiring



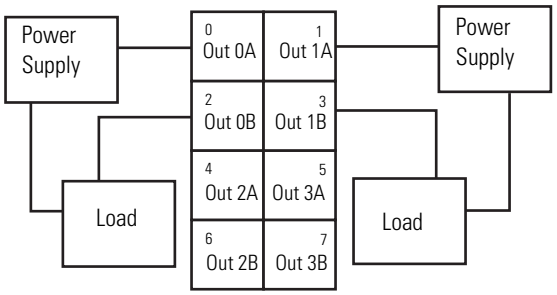
V = 12/24V dc
C = Common

Channel	Input Terminal	Common	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7

Connect common on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

Note: When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring (Load powered by External Power)



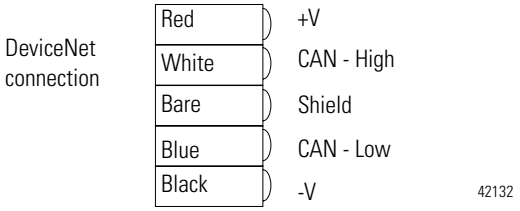
Out = Output channel relay contacts
Power Supply = can range from +5V dc to 240V ac
C = Common

Channel	Output	Common	Supply
Remote Termination Block 3			
0A	0	Not used	Not used
0B	2		
1A	1		
1B	3		
2A	4		
2B	6		
3A	5		
3B	7		
Remote Termination Block 4			
4A	0	Not used	Not used
4B	2		
5A	1		
5B	3		
6A	4		
6B	6		
7A	5		
7B	**7**		

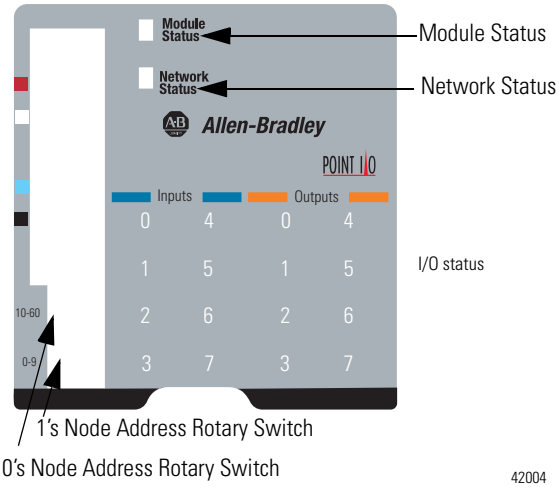
Supply voltage can range from +5V dc to 240V ac, depending on relay load.
12/24V dc power for the module is provided by the internal power bus.

Note: When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

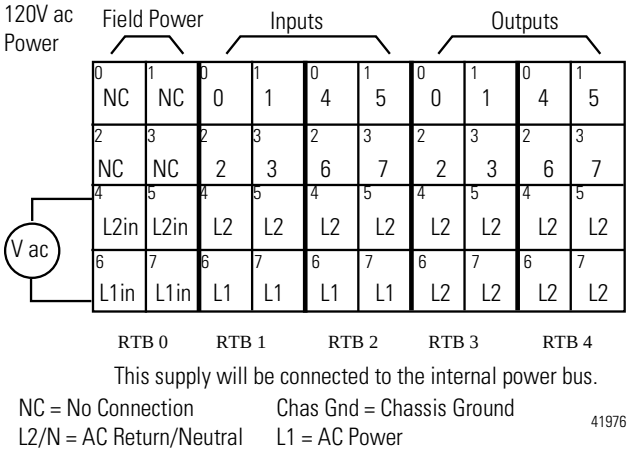
DeviceNet Connector Wiring



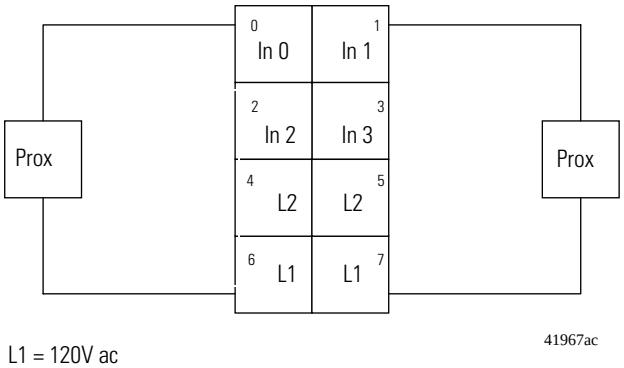
Wiring the POINTBlock 8 ac In/8 ac Out Module Cat. No. 1734D-IA8XOA8



Wiring


120V ac Power
Field Power
Inputs
Outputs
0 NC 1 NC 0 0 1 1 0 4 1 5 0 0 1 1 0 4 1 5
2 NC 3 NC 2 2 3 3 2 6 3 7 2 2 3 3 2 6 3 7
4 L2in 5 L2in 4 L2 5 L2 4 L2 5 L2 4 L2 5 L2 4 L2 5 L2
6 L1in 7 L1in 6 L1 7 L1 6 L1 7 L1 6 L2 7 L2 6 L2 7 L2
V ac
RTB 0
RTB 1
RTB 2
RTB 3
RTB 4
This supply will be connected to the internal power bus.
NC = No Connection
L2/N = AC Return/Neutral
Chas Gnd = Chassis Ground
L1 = AC Power
41976

Input Wiring



L1 = 120V ac
L2 = Return

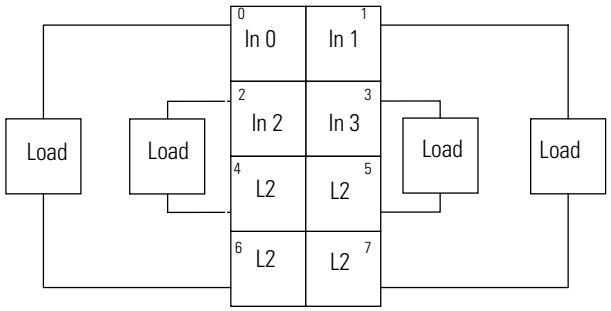
Channel	Input Terminal	Return	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7

120V ac is supplied through the internal power bus.

ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring



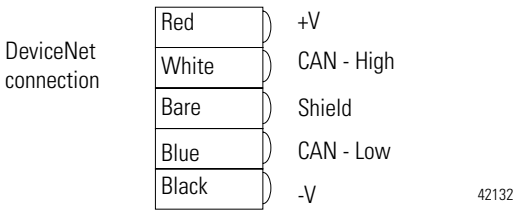
L1 = 120V ac
L2 = Return

	Output Terminal	Common Terminal	Power
Remote Termination Block 3			
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Remote Termination Block 4			
Channel 4	0	6	
Channel 5	1	7	
Channel 6	2	4	
Channel 7	3	5	
Module power is supplied from the internal power bus.			

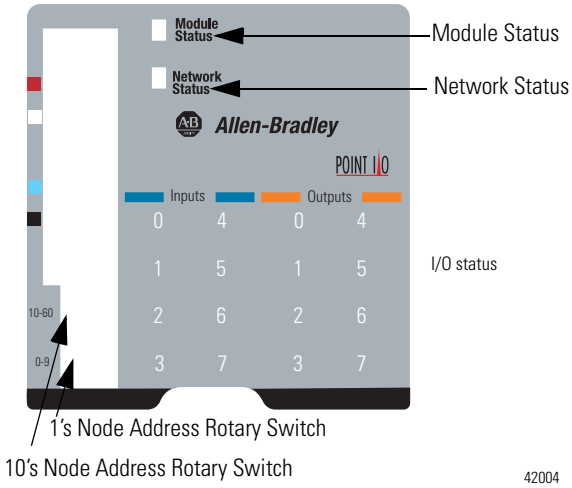
ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

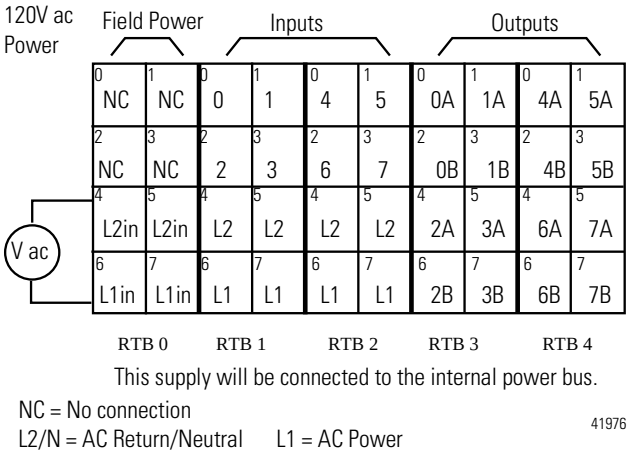
DeviceNet Connector Wiring



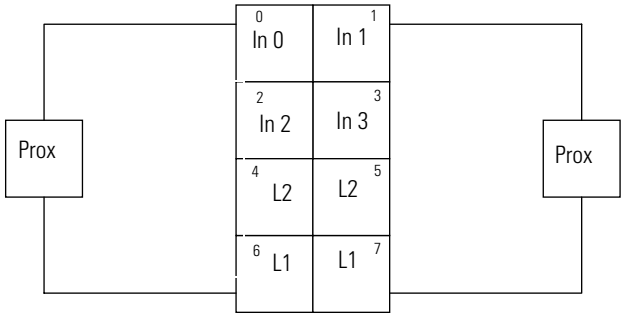
Wiring the POINTBlock 8 ac In/8 Relay Out Module Cat. No. 1734D-IA8XOW8



Wiring


120V ac Power
Field Power
Inputs
Outputs
V ac
0 NC 1 NC 0 0 1 1 0 4 1 5 0 0A 1 1A 0 4A 1 5A
2 NC 3 NC 2 2 3 3 2 6 3 7 2 0B 3 1B 2 4B 3 5B
4 L2in 5 L2in 4 L2 5 L2 4 L2 5 L2 4 2A 5 3A 4 6A 5 7A
6 L1in 7 L1in 6 L1 7 L1 6 L1 7 L1 6 2B 7 3B 6 6B 7 7B
RTB 0
RTB 1
RTB 2
RTB 3
RTB 4
This supply will be connected to the internal power bus.
NC = No connection
L2/N = AC Return/Neutral
L1 = AC Power
41976

Input Wiring



L1 = 120V ac
L2 = Return

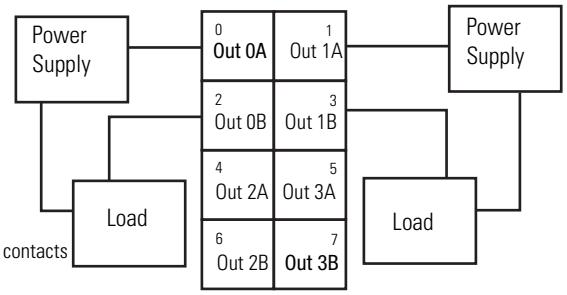
Channel	Input Terminal	Return	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
120V ac is supplied through the internal power bus.			

ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring

Load powered by External Power



Out = Output channel relay contacts
L1 = 120V ac
L2 = Return

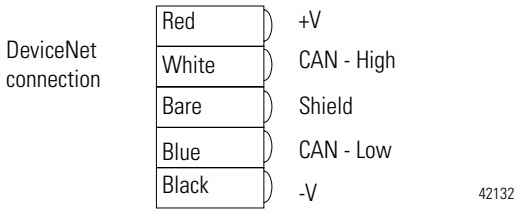
Channel	Output	Common	Supply
Remote Termination Block 3			
0A	0	Not used	Not used
0B	2		
1A	1		
1B	3		
2A	4		
2B	6		
3A	5		
3B	7		
Remote Termination Block 4			
4A	0	Not used	Not used
4B	2		
5A	1		
5B	3		
6A	4		
6B	6		
7A	5		
7B	7		

Supply voltage is 120V ac.
120V ac power for the module is provided by the internal power bus.

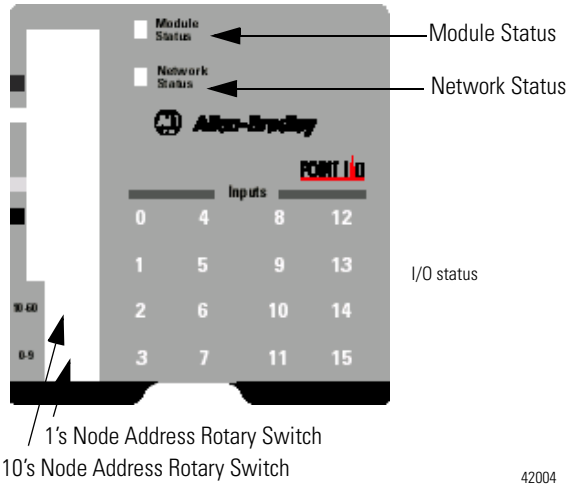
ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

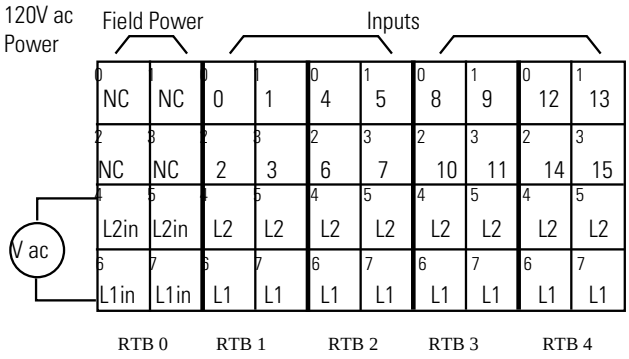
DeviceNet Connector Wiring



Wiring the POINTBlock 16 ac Input Module Cat. No. 1734D-IA16



Wiring the 16 ac Input Module

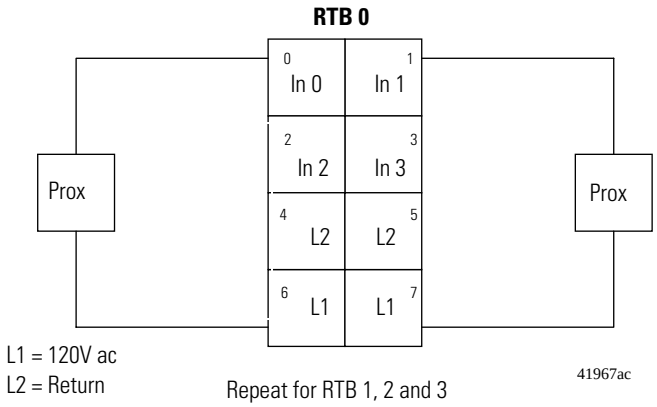

120V ac Power
Field Power
Inputs
NC NC 0 1 4 5 8 9 12 13
NC NC 2 3 6 7 10 11 14 15
L2in L2in L2 L2 L2 L2 L2 L2 L2 L2
L1in L1in L1 L1 L1 L1 L1 L1 L1 L1
V ac
RTB 0 RTB 1 RTB 2 RTB 3 RTB 4

This supply will be connected to the internal power bus.

NC = No Connection
L2/N = AC Return/Neutral
Chas Gnd = Chassis Ground
L1 = AC Power

42064IB

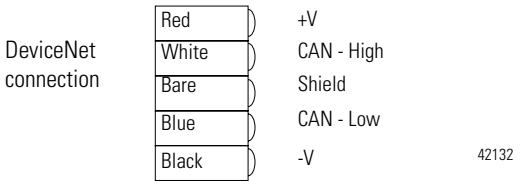
Input Wiring



ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

DeviceNet Connector Wiring



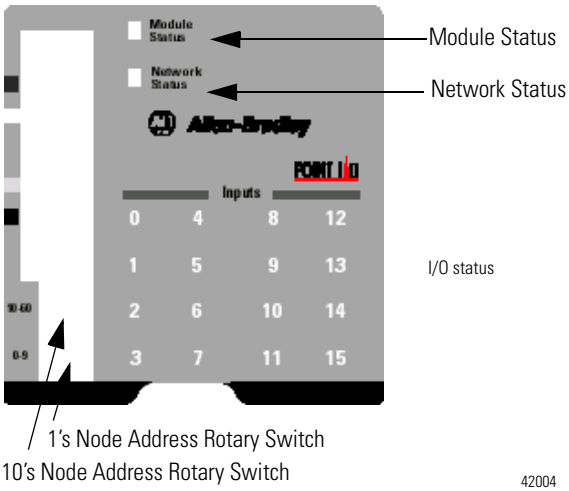
Communicating with Your Module

I/O messages are sent to (consumed) and received from (produced) the POINTBlock I/O modules. These messages are mapped into the processor's memory. This POINTBlock I/O input module produces 2 bytes of input data (scanner Rx). It does not consume I/O data (scanner Tx).

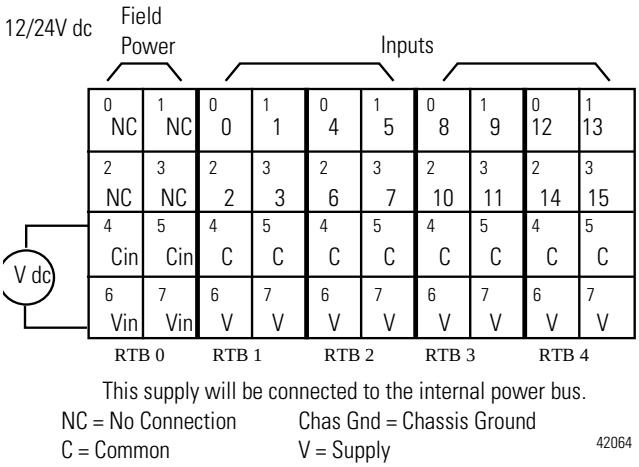
Default Data for the 1734D-IA16

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																

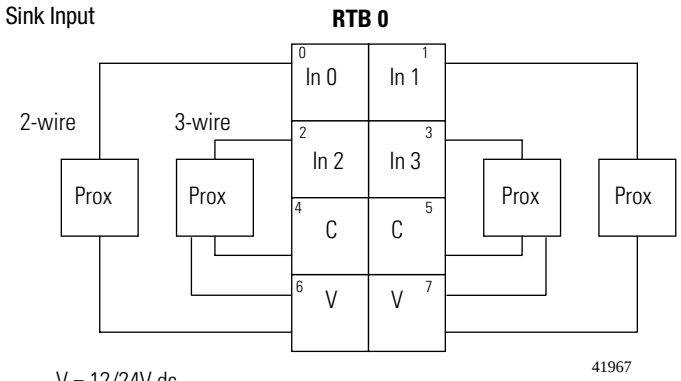
Wiring the POINTBlock 16 dc Input Module Cat. No. 1734D-IB16



Wiring the 16 dc Input Module


12/24V dc
Field Power
Inputs
0 NC 1 NC 0 0 1 1 0 4 1 5 0 8 1 9 0 12 1 13
2 NC 3 NC 2 2 3 3 2 6 3 7 2 10 3 11 2 14 3 15
4 Cin 5 Cin 4 C 5 C 4 C 5 C 4 C 5 C 4 C 5 C
6 Vin 7 Vin 6 V 7 V 6 V 7 V 6 V 7 V 6 V 7 V
V dc
RTB 0
RTB 1
RTB 2
RTB 3
RTB 4
This supply will be connected to the internal power bus.
NC = No Connection
Chas Gnd = Chassis Ground
C = Common
V = Supply
42064

Input Wiring



V = 12/24V dc
C = Common

Repeat for RTB 1, RTB 2 and RTB 3.

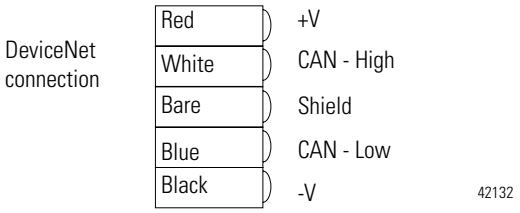
Channel	Input Terminal	Common	Voltage
Remote Termination Block 0			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 1			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
Remote Termination Block 2			
8	0	4	6
9	1	5	7
10	2	4	6
11	3	5	7
Remote Termination Block 3			
12	0	4	6
13	1	5	7
14	2	4	6
15	3	5	7

Connect common on 3-wire proximity switches.
12/24V dc is supplied through the internal power bus.

ATTENTION

When connecting more than 1 wire in a termination point, make sure that both wires are the same gauge and type.

DeviceNet Connector Wiring



Communicating with Your Module

I/O messages are sent to (consumed) and received from (produced) the POINTBlock I/O modules. These messages are mapped into the processor's memory. This POINTBlock I/O input module produces 2 bytes of input data (scanner Rx). It does not consume I/O data (scanner Tx).

Default Data for the 1734-IB16

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																

How to Configure POINT I/O Modules

Configuring POINT I/O Modules

Configuring POINT I/O modules is as easy as POINT and click. RSNetWorx™ allows you to simply identify the network and configure the I/O modules with easy-to-use Electronic Data Sheet (EDS) files - just POINT to the field and click on your selection.

To obtain EDS files for use in configuration, go to: **http://www.ab.com/networks/eds.**

Commisioning a Node

There are 3 methods for commisioning nodes:

- using the RSNetworx commisioning pulldown
- using the Sequential Auto Addressing feature
- using 3rd party configuration software

Using the RSNetWorx Commisioning Tool

The RSNetWorx commissioning tool lets you commission devices (set the node address and the data rate parameters) that are either:

- connected to a DeviceNet network, or
- connected via a point-to-point connection.

The node commissioning tool works through RSLinx; RSNetWorx does not have to be online when performing the operation.

Before you can add any device to a DeviceNet network, it must be commissioned. This means that a node address and a data rate must be programmed into the device. Some devices are precommissioned, meaning a node address (usually set to 63) and a data rate (usually set to 500kbits/s) are programmed into the device at the factory prior to shipment. Other devices will need to be commissioned in the field. Once a device has been commissioned and attached to a network, you can use the RSNetWorx for DeviceNet node commissioning tool to edit the node address and data rate that were set previously.

Exercise caution while editing node addresses when on a network. When you apply a new node address, it immediately overwrites the node address data in the device currently specified. If you decide to reassign node addresses, you should first determine the order in which this needs to be done so that all the devices will still have unique node addresses when you are finished.

For example, if two of the devices on your network are a photoelectric sensor and a hand controller and you accidentally change the node address of the hand controller to be the same as that of the photoelectric sensor, then the photoelectric sensor will no longer have a unique address, which means that it will not be able to provide data to the scanner. If you cannot access a device, because you have used its node address for another device, you will have to remove it from the network, recommission it, then reinstall it on the network.

ATTENTION

Do not change the data rate of devices while they are connected to a network. Erratic operation may result. We recommend that if you need to change the data rate of a device, you should remove it from the network, establish a point-to-point connection between the PC, which hosts the RSNetWorx for DeviceNet software, and the target device, recommission it, and then, reconnect it to the network.

Using Sequential Auto Addressing

Sequential Auto Addressing (SAA) will reassign the node address of every module to the right of the one you select. Each module will change it's node address to one greater than its neighbor.

IMPORTANT Make sure the node address of the selected module is the desired value before issuing the SAA command.

When this command is set, each module to the right will get a new address one greater than its neighbor. The addressing will ripple through a line of Point I/O modules, assigning a node number to each module installed in a mounting base.

Steps to Auto Address a line of Point I/O modules:

1. Set the address of the first module you want to address.
2. Set the Auto Address command to 'Sequential Address.'
3. All modules in line will reset with new sequential addresses.

Example

For example, if there are 5 POINT I/O modules in a line, and the address of the first module is 10. After the 'Sequential Address' command is sent to the first module, the node address of the line will be: 10, 11, 12, 13, and 14.

Using 3rd Party Configuration Software

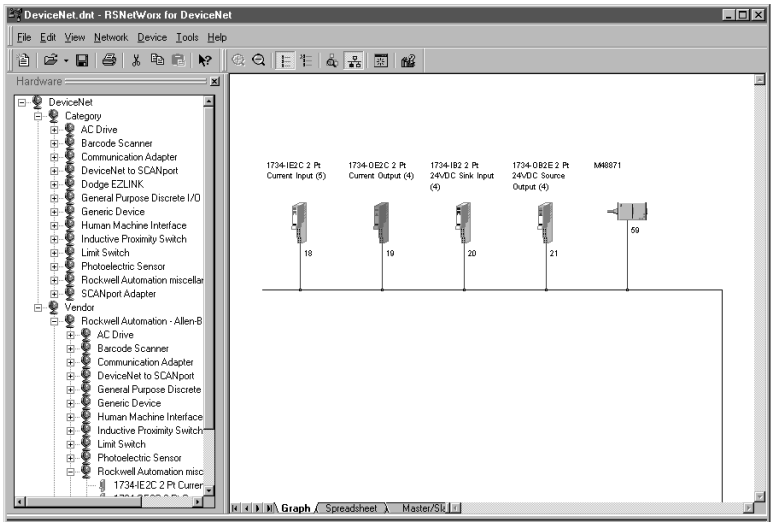
When using 3rd party configuration software, simply load the EDS files into the software and follow the designers instructions.

Configuring Digital Modules Using RXNetWorx

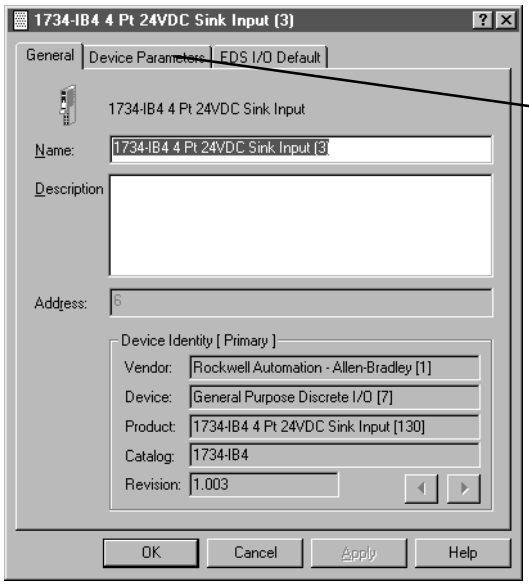
To configure digital modules, proceed as follows.

Open your RXNetWorx for DeviceNet.

Using the selections on the left in the window below, construct your system. (If your network is up, just click on the Browse button.)



After setting up your system, double-click on the module you want to configure. (If you are online, upload the configuration.) A page similar to the following will appear.

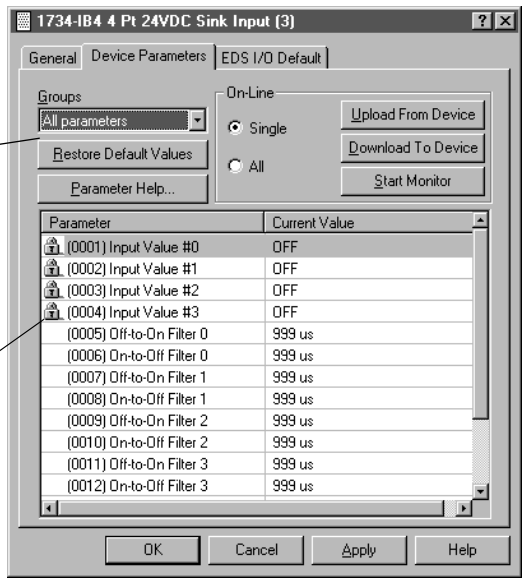


Click on the Device parameters tab to get to the screen for setting the parameters.

Configuring Input Modules

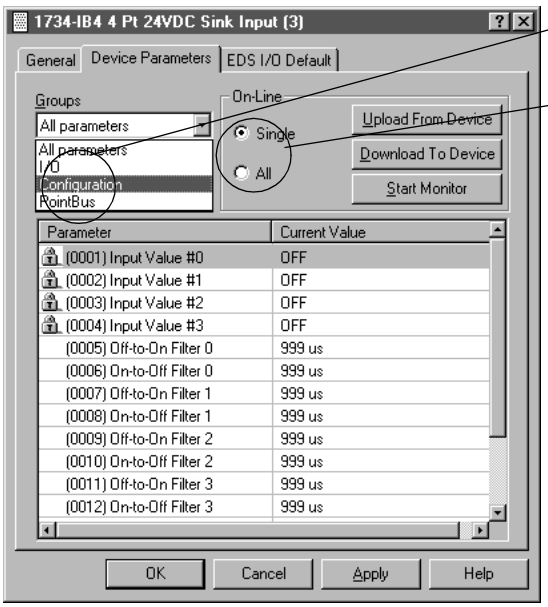
All digital **input modules** will have parameters similar to the following 1734-IB4 input module.

This pulldown has the following selections:
All parameters
I/O Configuration
PointBus

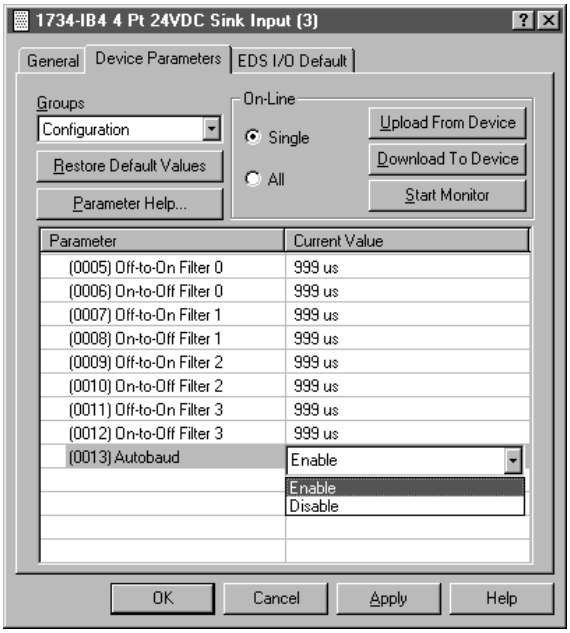


If you see a lock next to an entry, you can't change that parameter.

On this screen, you see all the parameters for the module. These include filters, autobaud, sequential addressing, and baud rate (if not using autobaud)

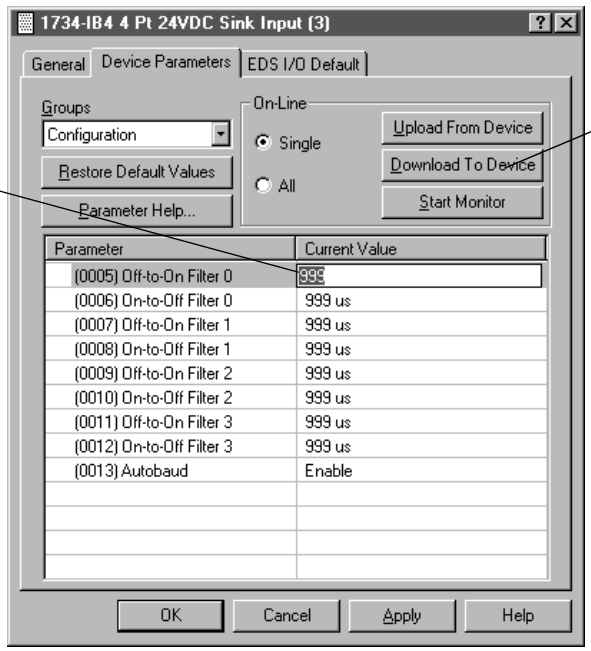


1. Select “Configuration” at the groups list. Then select the parameters you want.
2. You can select “Single” and change or configure parameters one at a time, or select “All” to change all selections at once.



If Autobaud is selected, the baud rate of this module will automatically match the baud rate of the existing devices on the network. Note that if Autobaud is selected, you are prevented from selecting a specific baud rate.

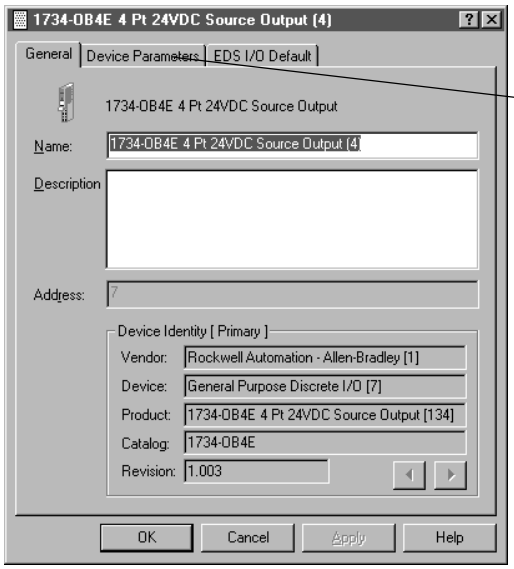
You can select the filter of your choice by selecting and typing in the filter time. Each input channel can have its own time selection.



After making your selections, click on the "Download to Device" button.

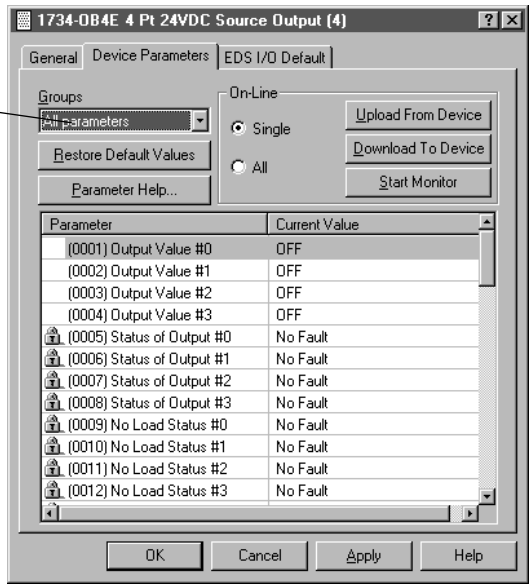
Configuring Output Modules

To configure **output modules**, you follow a similar procedure. Output modules will have parameter screens similar to this one for the 1734-OB2E output module.

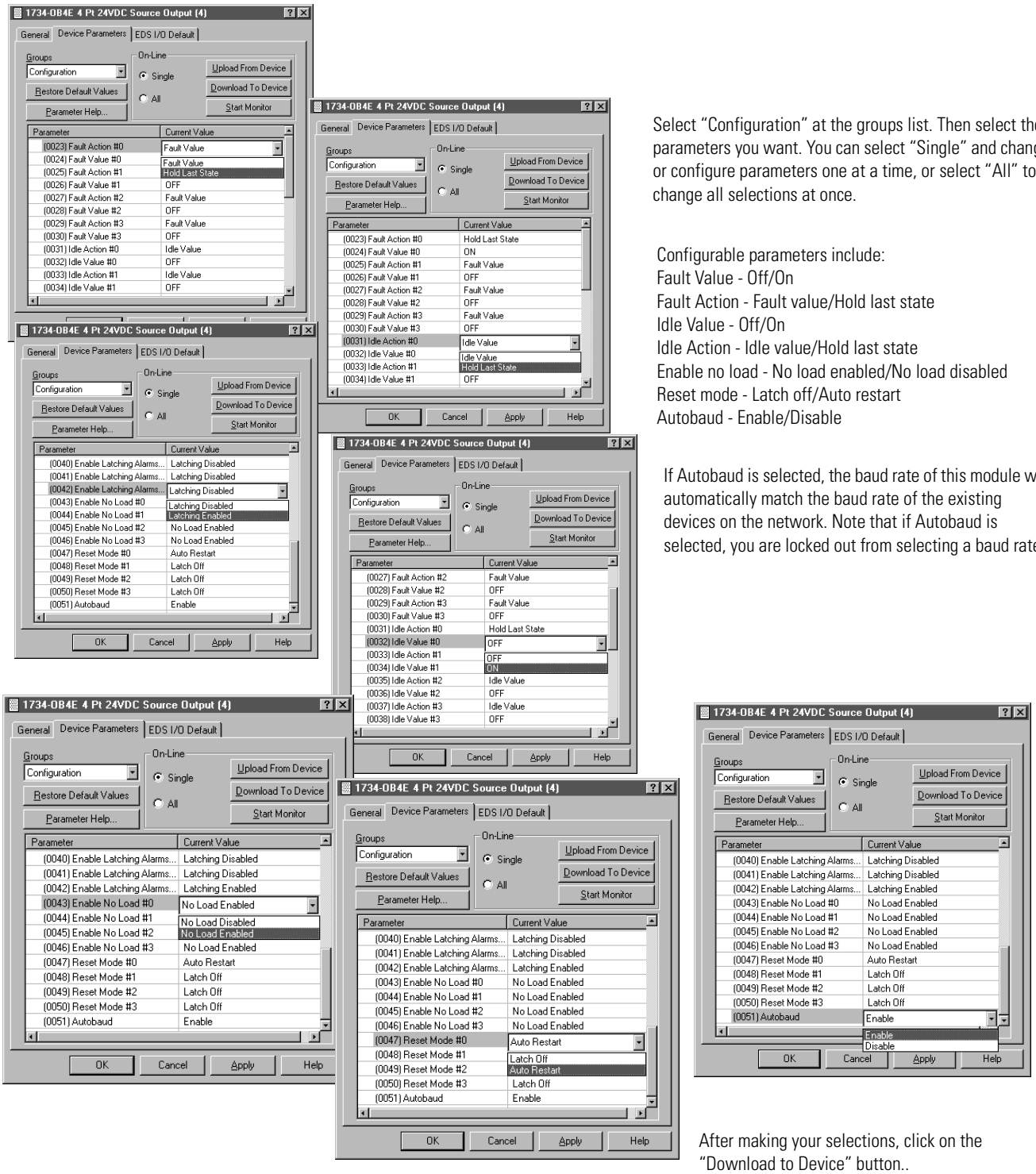


Click on the "DeviceNet Parameters" tab to get to the screen for setting the parameters.

This pulldown has the following selections:
All parameters
I/O output value
I/O output status
Reset services
PointBus
Configuration



On this screen, you set the parameters for the module. These include autobaud, sequential addressing, and baud rate (if not using autobaud)



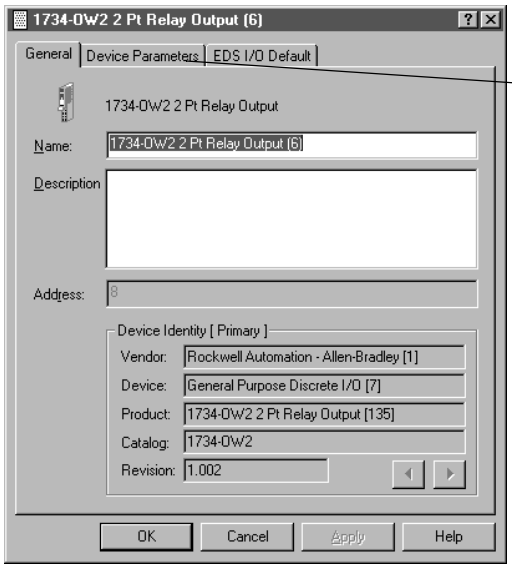
Select "Configuration" at the groups list. Then select the parameters you want. You can select "Single" and change or configure parameters one at a time, or select "All" to change all selections at once.

Configurable parameters include:
Fault Value - Off/On
Fault Action - Fault value/Hold last state
Idle Value - Off/On
Idle Action - Idle value/Hold last state
Enable no load - No load enabled/No load disabled
Reset mode - Latch off/Auto restart
Autobaud - Enable/Disable

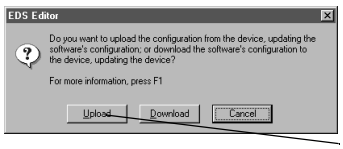
If Autobaud is selected, the baud rate of this module will automatically match the baud rate of the existing devices on the network. Note that if Autobaud is selected, you are locked out from selecting a baud rate.

After making your selections, click on the "Download to Device" button..

To configure the relay output module, cat. no. 1734-OW2:

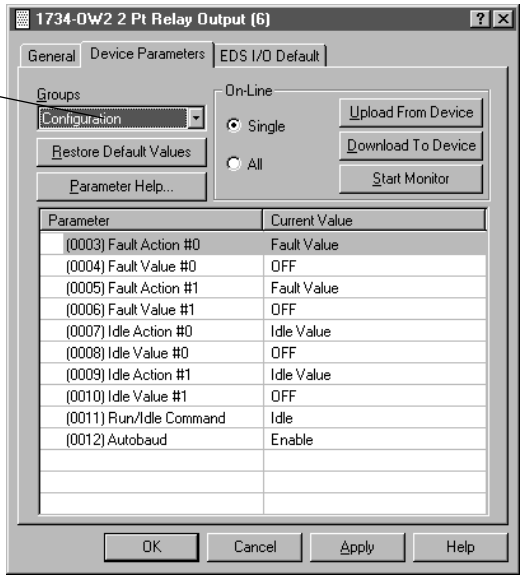


Click on the "DeviceNet Parameters" tab to get to the screen for setting the parameters.

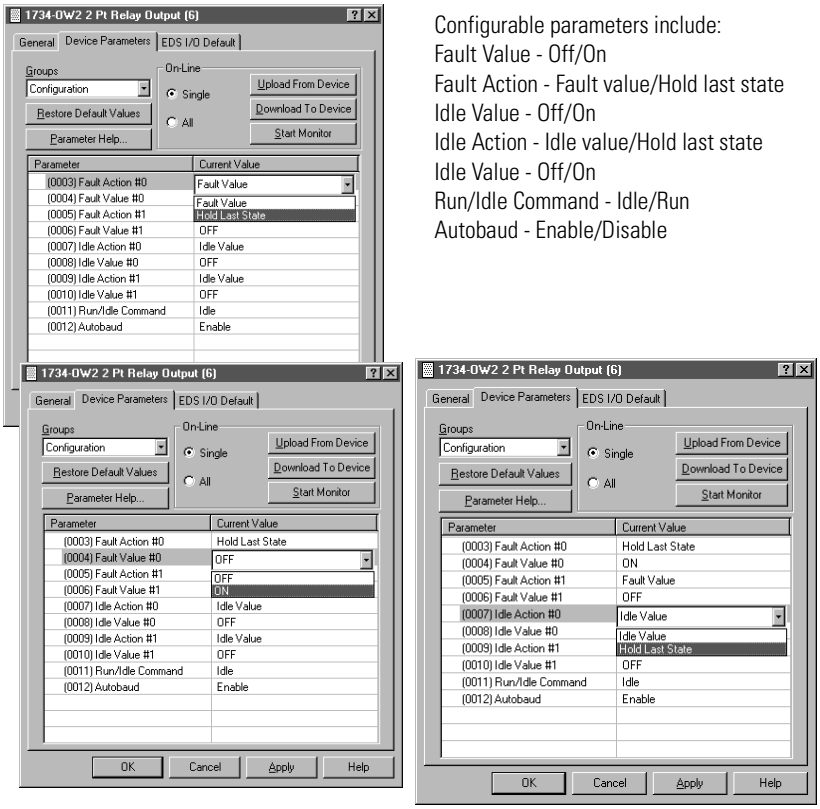

EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration, or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

Click on upload from "device button" to load the latest information.

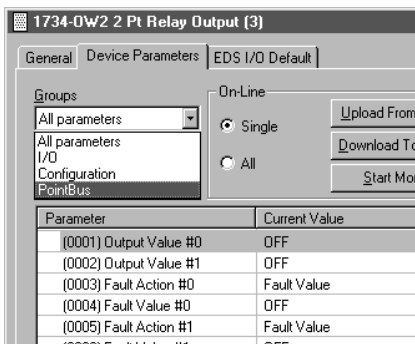
This pulldown has the following selections:
All parameters
I/O
PointBus
Configuration
Select Configuration to set the parameters.



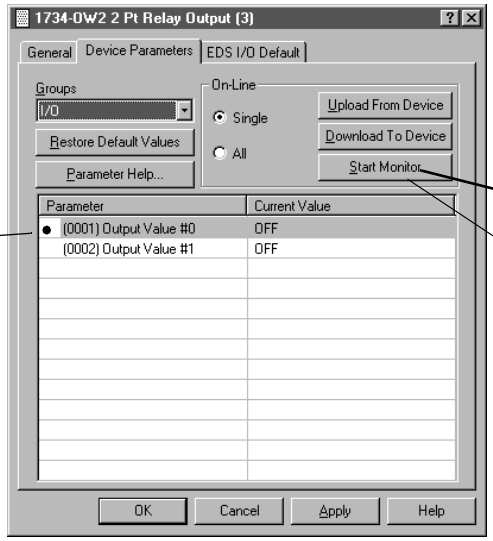
On the configuration screen, you set the parameters for the module. These include autobaud, sequential addressing, and baud rate (if not using autobaud)



Configurable parameters include:
Fault Value - Off/On
Fault Action - Fault value/Hold last state
Idle Value - Off/On
Idle Action - Idle value/Hold last state
Idle Value - Off/On
Run/Idle Command - Idle/Run
Autobaud - Enable/Disable



All parameters displays each item. PointBus displays only the run/idle command and autobaud.



Monitoring is identified by the ball appearing momentarily next to the selected item during each scan.

You can monitor the output using the Start Monitor button. Click on Start Monitor and the output value will be displayed each scan. If you click on All, all values will be scanned.

The Start Monitor button will turn to Stop Monitor during monitoring. Click on Stop Monitor to stop monitoring the selected parameters.

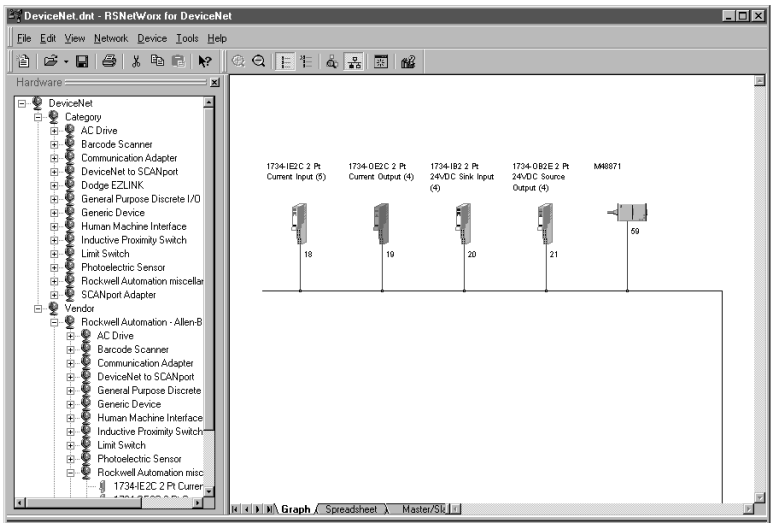
Configuring Analog Modules

The following describes how to configure any analog module. The 1734-IE2C and 1734-OE2C are representative of input and output analog modules. The actual screens for your particular module may or may not be identical to the ones shown here.

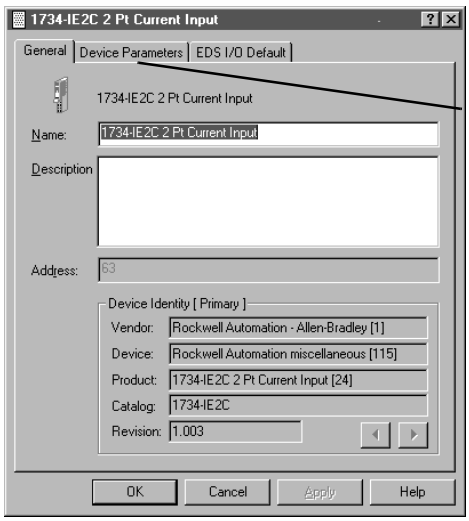
To configure analog modules, proceed as follows.

Open your RXNetWorx for DeviceNet.

Using the selections on the left in the window below, construct your system. (If your network is up, just click on the Browse button.)



Double click on the graphic for the desired module. The following screen will appear.



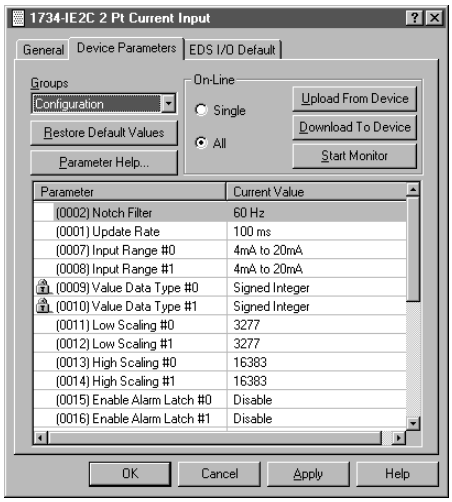
Click on the Device parameters tab to get to the screen for setting the parameters.

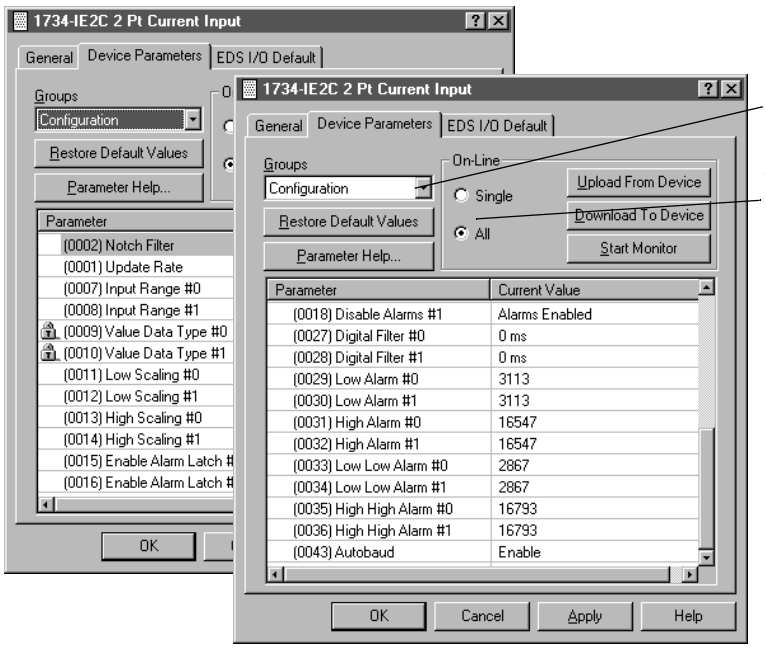
A screen similar to the following appears.

EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

Click on the “Upload “ button to upload existing parameters from the device.

The existing parameters will be loaded from the device.





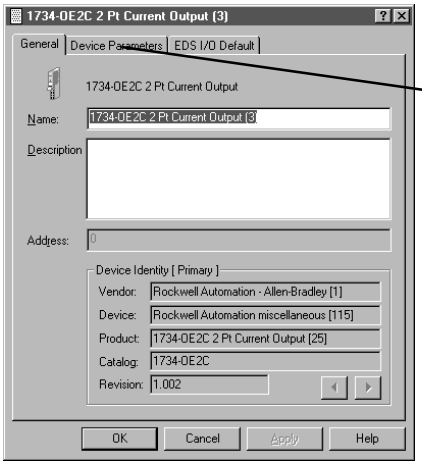
Select "Configuration" at the groups list. Then select the parameters you want.

You can select "Single" and change or configure parameters one at a time, or select "All" to change all selections at once.

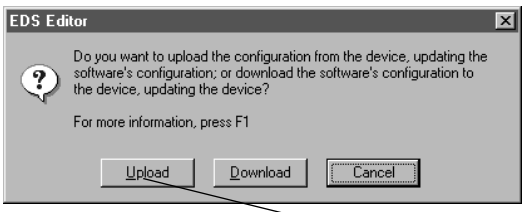
You can change the configuration now, or just apply and okay the uploaded parameters. If you change the parameters, you must download to the device,

To configure the analog output module, double-click on the icon.

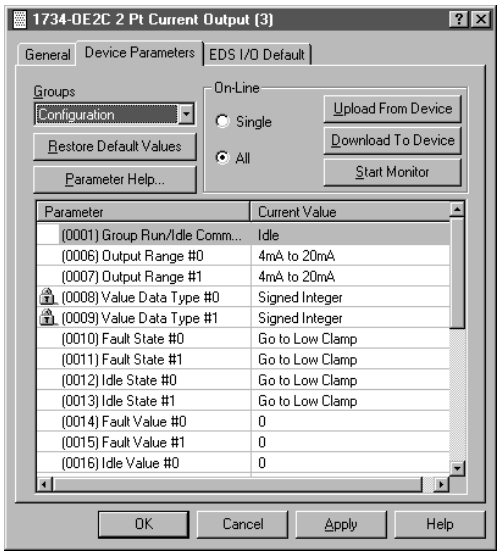
The following screen will appear.

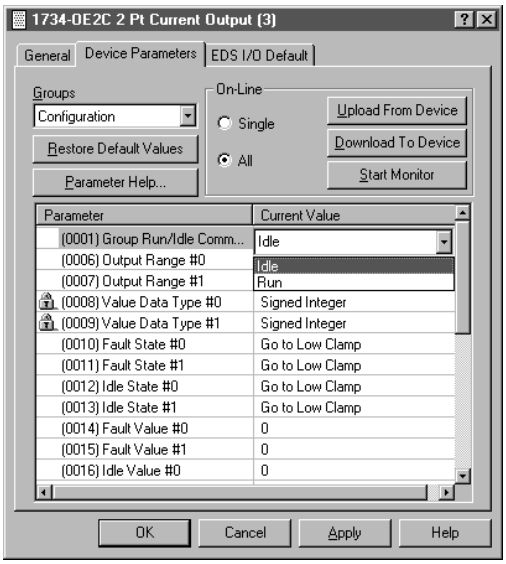


Click on the Device parameters tab to get to the screen for setting the parameters.


EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

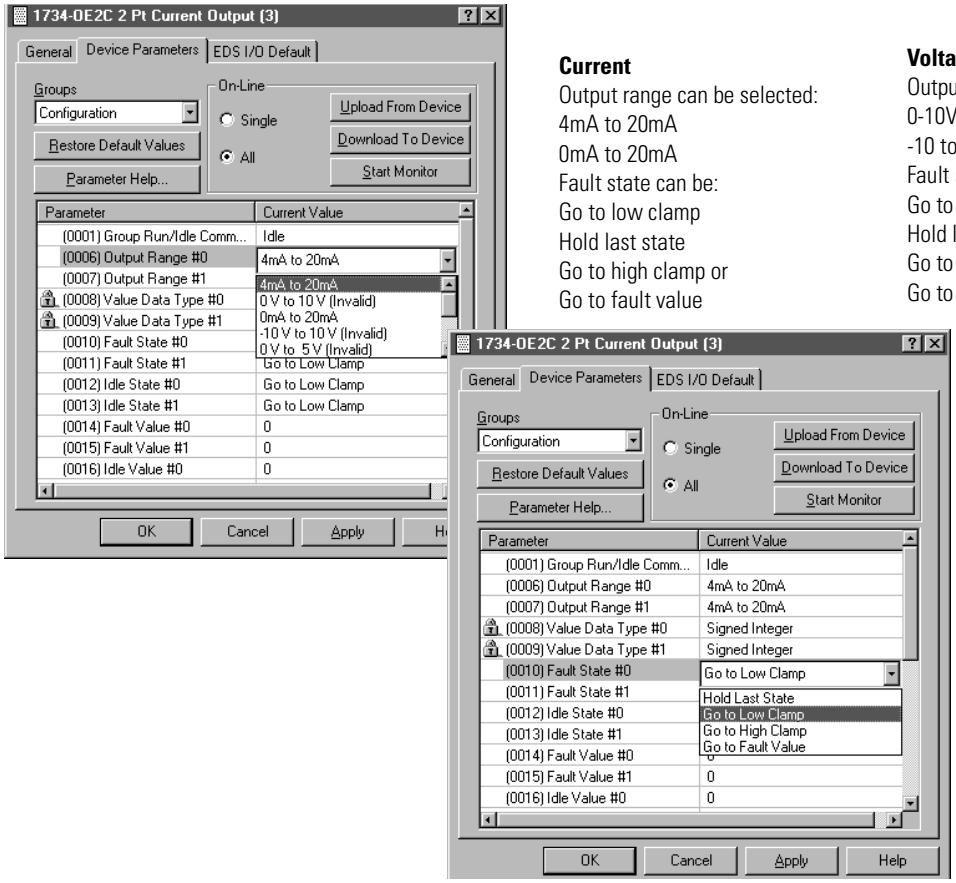
Click on the "Upload " button to upload existing parameters from the device.





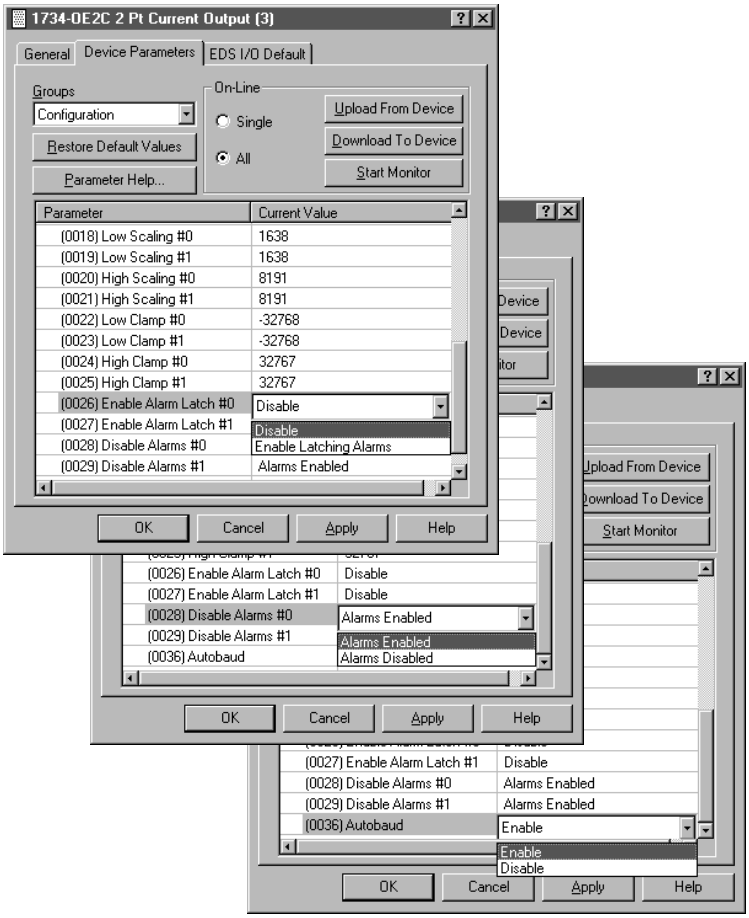
Group Run/Idle can be set to either run or idle.

Note that any parameter with a lock indicated next to it is nonchangeable.



Current
Output range can be selected:
4mA to 20mA
0mA to 20mA
Fault state can be:
Go to low clamp
Hold last state
Go to high clamp or
Go to fault value

Voltage
Output range can be selected:
0-10V
-10 to +10V
Fault state can be:
Go to low clamp
Hold last state
Go to high clamp or
Go to fault value



You can select the following for:
Enable latch - Enable latching alarms/Disable
Disable alarm latch - Alarms enabled/Alarms disabled
Autobaud - Enable/Disable

You can change any parameter that is not locked. However,with **current** modules, if you change values, it will effect the range or scaling of the module. Calibration is required if you desire to change values.

Summary

In this chapter, you learned how to configure the POINT I/O modules to meet the requirements of your system. If you need to modify the ranges or scaling, refer to the calibration section in this manual.

POINT I/O Module Status and Input Data

Digital Modules

The 1734 digital modules consist of:

- 2 and 4 sink input modules (1734-IB2, -IB4)
- 2 and 4 source input modules (1734-IV2, -IV4)
- 2 and 4 protected source output module (1734-OB2E, -OB4E)
- 2 relay output module (1734-OW2)
- 2 120V ac input module (1734-IA2)
- 2 220V ac input module (1734-IM2)
- 2 120/220V ac output module (1734-OA2)

Features of Input Modules

The 1734 digital dc input modules feature:

- dc inputs are 24V dc nominal
- input range of 10-28.8 V dc
- 2 or 4 sinking or sourcing style inputs.
- autobaud (will match baud of existing devices on the network)
- selectable input filter times (0 to 65ms with 1ms default)
- sequential auto addressing

Complete specifications are shown in Appendix A.

Communications

1734-IB2 and -IB4

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx). It does not consume I/O data (scanner Tx).

Default Data Map for the 1734-IB2 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

Default Data Map for the 1734-IB4 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0, Ch1 = input channel 1, Ch2 = input channel 2 and Ch3 = channel 3; 0 = off, 1 = on								

1734-IV2 and -IV4

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx). It does not consume I/O data (scanner Tx).

Default Data Map for the 1734-IV2 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0 data, Ch1 = input channel 1 data								

Default Data Map for the 1734-IV4 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch1	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0, Ch1 = input channel 1, Ch2 = input channel 2 and Ch3 = input channel 3								

Digital ac Input Modules

The 1734 digital ac input modules feature:

- ac inputs are 120 or 220V ac nominal
- input range of 65-132 for 120V ac inputs; and 159-264 for 220V ac inputs
- 2 sinking style inputs.
- autobaud (will match baud of existing devices on the network)
- selectable input filter times (0 to 65ms with 1ms default)
- sequential auto addressing

Complete specifications are shown in Appendix A.

1734-IA2

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It does not consume I/O data (scanner Tx).

Default Data Map for the 1734-IA2 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

1734-IM2

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It does not consume I/O data (scanner Tx).

Default Data Map for the 1734-IM2 Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

Features of Output Modules

The 1734-OB2E and 1734-OB4E dc output modules have:

- 24V dc outputs with a range of 10-28.8V dc
- output diagnostic features are incorporated to assist in troubleshooting
- current limited outputs of up to 1A with respect to their dc return
- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in Appendix A.

1734-OB2E and -OB4E

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734-OB2E Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Default Data Map for the 1734-OB4E Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Digital ac Output Module

The 1734-OA2 ac output module has:

- 120V ac outputs with a range of 74-264V ac (120/220V ac nominal)
- each output is rated at 0.10A minimum to 0.75A maximum
- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in Appendix A.

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O output module consumes 1 byte of output data (scanner Tx) (state). It does not produce data (scanner Rx).

Default Data Map for the 1734-OA2 Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Relay Output Module

Features include:

- Type A Normally Open relays
- sink or source a current with respect to power or return
- contact outputs are isolated from each other.
- each output is rated 5 to 240V dc/Vrms at 2A (current is load dependant).
- autobaud (will match baud of existing devices on the network)
- sequential auto addressing

Complete specifications are shown in appendix A.

1734-OW2

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module does not produce input data (scanner Rx). It does consume 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734-OW2 Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Analog Input Modules

1734-IE2C Analog Input Module Description

The 1734-IE2C Analog Input Module is a two-channel module that converts an analog input current to a digital value. The module resolution is 16 bits across 0-21mA.

The module has two modes.

- 0 – 20mA
- 4 – 20mA. (Default mode)
- scaling - scaled by the user to any 16 bit signed integer (–32768 to +32767)
- operates in unipolar mode

1734-IE2V Analog Input Module Description

The 1734-IE2V Analog Input Module is a two-channel module that converts an analog input voltage to a digital value. The module resolution is 16 bits across -10 to +10V.

The module has two modes.

- 0 – 10V dc (Default mode)
- +/- 10V dc.
- scaling - scaled by the user to any 16 bit signed integer (–32768 to +32767)
- operates in unipolar or bipolar modes

Data

The1734-IE2C module operates in unipolar mode only; the 1734-IE2V module operates in unipolar or bipolar modes. Data returned from the module is scaled by the user to any 16 bit signed integer (–32768 to +32767).

Six bytes of data are read from the 1734-IE2C and 1734-IE2V modules. No data is written to the input modules.

- Channel 0 Data (2 bytes)
- Channel 1 Data (2 bytes)
- Channel 0 Status (1 byte)
- Channel 1 Status (1 byte)

Communicating with Your Module

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. These POINT I/O input modules produces 6 bytes of input data (scanner Rx) and fault status data. It does not consume I/O data (scanner Tx).

Default Data Map for the 1734-IE2C Analog Input Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 High Byte								Input Channel 0 Low Byte							
	Input Channel 1 High Byte								Input Channel 1 Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault
HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm: 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

Default Data Map for the 1734-IE2V Analog Input Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault
HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

Scaling

You select the scaling for each channel by making the selection on the configuration screen. Scaling is the conversion of unscaled data to engineering units. The high and low scalers (Engineering Units) are signed integers. There are no restrictions on these units. Default for 1734-IE3V scalers are 0 for low and +10000 for high. Default for 1734-IE3C scalers are +3277 for low and +16383 for high. Each scaler can be set individually and on a per channel basis. The 1734-IE2C module reads a current input between 0 or 4mA (low) and 20mA (high) (dependent on scale selected). The 1734-IE2V module reads a voltage input between -10V or 0V (low) and +10V (high) (dependent on scale selected).

Channel Status

Table 1: Channel Status Byte

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Over Range	Under Range	High High Alarm	Low Low Alarm	High Alarm	Low Alarm	CAL Mode	Channel Fault

Channel Fault Description

This is general channel health bit indicates whether the module is operating with or without faults. If any alarms or faults are detected, this bit is set. Channel Status can be read on a per channel basis or by reading the Channel Status Byte (Bit 0) in the Module Produce Assembly.

Calibration Mode Bit

This bit (Channel Status Bit 1) is set when you select the “begin calibration” mode on the pulldown for your particular module. When set, the channel status indicator will blink green.

Low Alarm Value Bit

When the input signal is less than the Low Alarm value, this bit (Channel Status Bit 2) is set. . The default value for this alarm is: 1734-IE2C - 3113 counts (3.8mA); 1734-IE2V - 500 counts = 500mV (0.5V).

High Alarm Value Bit

When the input signal is more than the High Alarm value, this bit (Channel Status Bit 3) is set. The default value for this alarm is: 1734-IE2C - 16547 counts (20.2mA), 1734-IE2V - 9500 counts = 9500mV (9.5V).

Low Low Alarm Value Bit

When the input signal is less then the Low Low Alarm value, this bit (Channel Status Bit 4) is set. The default value for this alarm is: 1734-IE2C - 2867 counts (3.5mA); 1734-IE2V - 200 counts = 200mV (0.2V).

High High Alarm Value Bit
When the input signal is more then the High Alarm value, this bit (Channel Status Bit 5) is set. The default value for this alarm is: 1734-IE2C - 16792 counts (20.5mA); 1734-IE2V - 9800 counts = 9800mV (9.8V).

Under Range Status Bit
This bit (Channel Status Bit 6) is set when the module returned data is at a minimum. 1734-IE2C - 98 counts (around 120μA); 1734-IE2V - -0.25 or -10.25V, depending upon range. When set, the channel status indicator will blink red.

Overrange Status Bit
This bit (Channel Status Bit 7) is set when the module returned data is at a maximum. 1734-IE2C -around 21mA; 1734-IE2V - +10.25V. When set, the channel status indicator will blink red

Latch Alarms

The latch alarms allows low and high alarm status information to be latched when an alarm is set. Even if an alarm is momentarily set, the status bit stays set until a reset latch service is issued. Default setting is Unlatched. Each channel can be configured individually.

Disable Alarms

This function disables all channel alarms and faults so they are not reported in the channel status field. The channel indicator stays solid green, alarms are ignored and Change Of State has no effect on module behavior. The default state is Alarms Enabled. Each channel can be configured individually.

Calibration Status

This status bit is set when the channel is in calibration mode. At "Begin Calibration," the module is put into calibration mode. This bit is reset when the "Accept Low Calibration," or "Accept High Calibration," commands are sent. **Note:** This is NOT the Bad Calibration Status bit, which is set if the module is NOT calibrated.

Digital Filter

A digital filter is available on the input modules. The user sets a time constant which is used in the equation:

$Yn = Yn\text{-}1 + (dt / (dt + T_A) * (Xn\text{-}Yn\text{-}1)$
Where: Yn = new data
Yn-1 = old data.
dt = Channel Update Rate in milliseconds.
T_A = digital filter time constant.
Xn = present unfiltered data.

T_A can be an integer from 0 to 10,000ms. If set to 0, the filter is disabled.

The default setting is disabled. This is done by setting the time constant (TA) to zero. Each channel can be configured individually for time constant but update rate (dt) is done on a per module basis.

Update Rate

The update rate determines how often a channel is scanned. The maximum rate is determined by the notch filter setting. The minimum update rate is 10,000ms.

- 120ms maximum update rate - 50Hz
- 100ms update rate - 60Hz
- 24ms update rate - 250Hz
- 12ms update rate - 500Hz

Notch Filter

Select a notch filter. The notch filter is for both inputs. Valid settings are:

- 50Hz - 120ms maximum update rate
- 60Hz - 100ms update rate
- 250Hz - 24ms update rate
- 500Hz - 12ms update rate

The update rate determines the rate at which the inputs are sampled. Maximum update rate is determined by the notch filter setting. The notch filter parameter is used to select the fastest possible rate. Minimum update rate is 10,000ms.

Alarms

There are 4 different alarms available to the user.

- Low,
- Low Low,
- High
- High High.

Each alarm has one status bit which is set to indicate when the input goes beyond its set point. All Alarm Status bits can be read individually or by reading the Channel Status Byte (Bits 2-5).

Each channel Alarm can be configured individually.

Range Status

The module reports both underrange and overrange status.

Under Range Status

This bit (Channel Status Bit 6) is set when the module returned data is at a minimum. 1734-IE2C - 98 counts (around 120μA); 1734-IE2V - -0.25 or -10.25V, depending upon range. When set, the channel status indicator will blink red. On the 1734-IE2C, a wire off condition will set this bit.

Overrange Status

This bit (Channel Status Bit 7) is set when the module returned data is at a maximum. 1734-IE2C -around 21mA; 1734-IE2V - +10.25V. When set, the channel status indicator will blink red. On the 1734-IE2V, a wire off condition will set this bit.

Channel Indicator Behavior

Listed below is the channel indicator states for given module conditions.

Indication	Probable Cause
Channel Status	
Off	Module in CAL mode
Solid Green	Normal (channel scanning inputs)
Flashing Green	Channel being calibrated
Solid Red	No power or major channel fault
Flashing Red	Channel at end of range 1734-IE2C - (0mA or 21mA) 1734-IE2V - (-0.25, -10.25 or +10.25)

Analog Output Module

1734-OE2C Analog Output Module Description

The 1734-OE2C Analog Output Module is a two-channel module that converts a digital code to an analog output current. The module resolution is 13 bits across 0-21mA.

1734-OE2V Analog Output Module Description

The 1734-OE2V Analog Output Module is a two-channel module that converts a digital code to an analog output voltage. The module resolution is 14 bits across -10 to +10V.

Data

The 1734-OE2C module operates in unipolar mode; the 1734-OE2V module operates in unipolar or bipolar modes. Data sent to the module is scaled by the user to any 16 bit number. All data sent to the module is Signed integers ranging from –32768 to +32767 counts.

Default Data Map for the 1734-OE2C Analog Output Module

The module consumes 4 bytes of data (scanner Rx) in the following format

- Channel 0 Data (2 bytes)
- Channel 1 Data (2 bytes)

Message size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

The module produces 2 bytes of data (scanner Tx) in the following format.

- Channel 0 Status (1 byte)
- Channel 1 Status (1 byte)

Message size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault
HCA = High Clamp Alarm; 0 = no error, 1 = fault

Default Data Map for the 1734-OE2V Analog Output Module

The module consumes 4 bytes of data (scanner Rx) in the following format

- Channel 0 Data (2 bytes)
- Channel 1 Data (2 bytes)

Message size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

The module produces 2 bytes of data (scanner Tx) in the following format.

- Channel 0 Status (1 byte)
- Channel 1 Status (1 byte)

Message size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault
HCA = High Clamp Alarm; 0 = no error, 1 = fault

Operational Modes

The 1734-OE2C module has two modes.

- 0 – 20mA and
- 4 – 20mA. (Default mode)

The 1734-OE2V module has two modes.

- 0 – 10V dc (Default mode) and
- -10 to +10V dc

Channel Mode can be set individually. The effective difference in the two modes is how the user applies the scalers. There is no internal offset (i.e. the resolution is unchanged). For the 1734-OE2C module, in both modes, the high scaler is assigned the value of 20mA. In 0-20mA mode, the low scaler is assigned the value of 0mA. In 4-20mA mode, it is assigned the value of 4mA. For the 1734-OE2V module, in both modes, the high scaler is assigned the value of +10V. In 0-10 mode, the low scaler is assigned the value of 0V. In $\pm$10V mode, it is assigned the value of -10V.

Scaling

Scaling is the conversion of unscaled data to engineering units. The high and low scalers (Engineering Units) are Signed integers. There are no restrictions on these units. Default scaling points are 1638 and 8191 counts. Each scaler can be set individually and on a per channel basis. The 1734-OE2C module calculates and outputs a current between 0mA or 4mA (low scaler) and 20mA (high scaler); the 1734-OE2V module calculates and outputs a voltage between -10V or 0 (low scaler) and +10V (high scaler). Since there are no restrictions on scalers, use care when configuring the module. If the lower scaler is set to –32768 and the module is in 4-20mA (or -10V to +10V) mode, the module will be incapable of setting the output to 0mA (or less than -10V on the 1734-OE2V) because that requires a number smaller than –32768, but –32768 is the smallest number that can be represented with an integer.

Fault and Idle Mode State

The user can select what happens to the output if a fault occurs or if the module is in idle mode. The choices are:

- Hold Last State,
- Low Clamp,
- High Clamp
- or a user defined value.

The module default for both Fault and Idle state is low clamp. All values are scaled. Each state can be set individually and on a per channel basis. An example of what would happen if the module lost communication is shown below.

Channel Configuration	When a Fault Occurs	When Module is Idling
Module Mode = 4-20mA with Scalers set at 0 & 8191 counts, Low Clamp = 0 counts, High Clamp = 8191 counts, Fault State = User Defined, Idle State = Low Clamp, and Fault Value = 4095 counts	Channel 0 goes to 4095 counts which equals 12mA	Channel 0 goes to 0 counts which equals 4mA
Module Mode = 0 to 10V with Scalers set at 0 & 10000 counts, Low Clamp = 0 counts, High Clamp = 10000 counts, Fault State = User Defined, Idle State = Low Clamp, and Fault Value = 5000 counts	Channel 0 goes to 5000 counts which equals 5V	Channel 0 goes to 0 counts which equals 0V

Channel Status

The module has 4 status bits included in the Channel Status Byte. These are:

- Channel Fault
- CAL Mode
- Low Clamp
- High Clamp

Channel Status can be read individually using RSNetworx or by reading the Channel Status Byte (Bit 0) in the Module Produce Assembly.

Table 2: Channel Status Byte

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Not used				High Clamp	Low Clamp	CAL Mode	Channel Fault

Channel Fault Bit

This general channel health bit indicates whether the module is operating with or without any faults. If any alarms or faults are detected, this bit is set.

Calibration Status Bit
This status bit is set when the channel is in calibration mode. At "Begin Calibration," the module is put into calibration mode. This bit will not get set until the "Output Low Reference" or "Output High Reference" commands are sent. **Note:** Do not confuse this bit with the Bad Calibration Status bit, which is set if the module is NOT calibrated.

Low Clamp Status Bit
This status bit (Channel Status Bit 2) is set when the output data is clamped to it's minimum level. The default value is -32,768 counts. Low Clamp Status can be read on a per channel basis or by reading the Module Produce Assembly.

High Clamp Status Bit
This status bit is set when the output data is clamped to its maximum level. The default value is: 1734-IE2C - 32,767 counts. High Clamp Status can be read on a per channel basis or by reading the Module Produce Assembly.

Open-Wire Detection (1734-OE2C only)
This condition has no unique status bit, but if an open wire condition exists, the general Channel Status bit will be set. The module can't determine what the condition is: open wire or loss of field power. The Channel indicators will blink red.

Power Fail Detection (1734-OE2V only)
This condition has no unique status bit, but if a power failure condition exists, the general Channel Status bit will be set. The Channel indicators will go to solid red.

Low and High Clamps

The clamps define the maximum and minimum values of the output. These default to -32768 counts (0 or 4mA) and +32767 counts (21mA) for the 1734-OE2C module; defaults to -32768 (0 or -10V) and 32767 (+10V) for the 1734-OE2V module. The data is scaled. Each Clamp can be set individually and on a per channel basis. When the output value reaches clamp value, a status bit is set, indicating the output has been clamped. The clamps are absolute. Regardless of what is sent to the module or what the fault state values are, the module will not operate outside these settings.

Latched Alarms

The latched alarms allow low and high clamp status information to be latched. If an output is clamped momentarily, the clamp status bit stays set until a reset latch service is issued. The default setting is Unlatched. Each channel can be configured individually. You can enable the Latch on a per channel basis.

Alarm Disable

This function disables all channel alarms and faults so they are not reported in the channel status field. The channel LED stays solid green and Latch Alarms are ignored. Change Of State has no effect on module behavior. Default state is Alarms Enabled. Each channel can be configured individually. You can disable Alarms on a per channel basis or they can be set with the Module Configuration Assembly.

Channel Indicators

Listed below is the channel indicator states for the given module condition.

Indication	1734-OE2C Probable Cause	1734-OE2V Probable Cause
Channel Status		
Off	Module in CAL mode.	Module in CAL mode.
Solid Green	Channel actively controlling outputs.	Channel actively controlling outputs.
Blinking Green	Channel calibrating.	Channel calibrating.
Blinking Red	Open wire, or no power.	Low/High Clamp alarm
Solid Red	Unrecoverable fault - may require device replacement	Loss of field power

POINTBlock I/O Modules

This 1734D input/output modules are DIN-rail mounted devices with an integrated DeviceNet communication interface, 8 inputs and 8 outputs, removable terminations, and a PointBus expansion port.

The modules include a non-isolated DeviceNet communication interface. The 24V dc from the DeviceNet connection powers a non-isolated dc/dc converter that generates +5V dc which powers the POINTBlock electronics and connects to the PointBus port to power the expansion I/O electronics.

TThe 1734D-IB8XOB8E uses cage-clamp terminations, and the 1734D-IB8XOB8ES uses spring-clamp terminations. The module uses 12/24V dc.

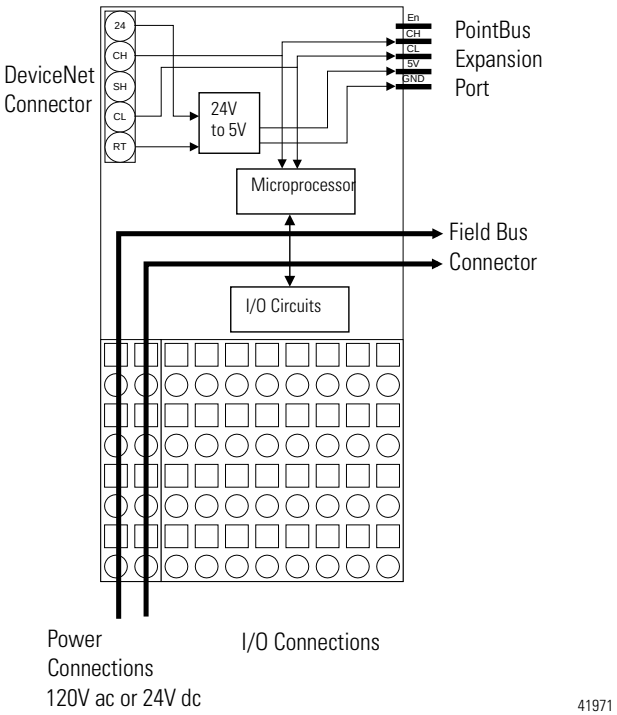
The 1734D-IB8XOW8 uses cage-clamp terminations, and the 1734D-IB8XOW8S uses spring-clamp terminations. The module uses 12/24V dc.

The 1734D-IA8XOA8 uses cage-clamp terminations, and the 1734D-IA8XOA8S uses spring-clamp terminations. The module uses 120V ac.

The 1734D-IA8XOW8 uses cage-clamp terminations, and the 1734D-IA8XOW8S uses spring-clamp terminations. The module uses 120V ac.

The 1734D-IA16 uses cage-clamp terminations, and the 1734D-IA16S uses spring-clamp terminations. The module uses 120V ac.

The 1734D-IB16 uses cage-clamp terminations, and the 1734D-IB16S uses spring-clamp terminations. The module uses 12-24V dc.



ATTENTION

Whatever field power you supply is connected to the internal field-power bus. **For example, if 120V ac is applied to the power connections, there will be 120V ac applied to the modules through the internal field-power bus.**

POINT I/O modules to the right of the module will also have that internal power bus voltage applied, unless you use a 1734-FPD to interrupt and change the field power-bus voltage.

1734D-IB8XOB8E

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734D-IB8XOB8E dc Input/Output Module
Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data (or state)
Where: 0 = off, 1 = on									

1734D-IB8XOW8

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734D-IB8XOW8 dc Input/Relay Output Module
Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

1734D-IA8XOA8

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734D-IA8XOA8 ac Input/Output Module
Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

1734D-IA8XOW8

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This POINT I/O input module produces 1 byte of input data (scanner Rx) (status). It consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 1734D-IA8XOW8 ac Input/Relay Output Module
Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

1734D-IA16

I/O messages are sent to (consumed) and received from (produced) the POINTBlock I/O modules. These messages are mapped into the processor's memory. This POINTBlock I/O input module produces 2 bytes of input data (scanner Rx). It does not consume I/O data (scanner Tx).

Default Data for the 1734D-IA16

Message size: 2 Bytes

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																

1734D-IB16

I/O messages are sent to (consumed) and received from (produced) the POINTBlock I/O modules. These messages are mapped into the processor's memory. This POINTBlock I/O input module produces 2 bytes of input data (scanner Rx). It does not consume I/O data (scanner Tx).

Default Data for the 1734D-IB16

Message size: 2 bytes

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															

Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on

Calibrating Your Analog Modules

What This Chapter Contains

For Information on:	See page:
Tools Required to Calibrate Your Analog Modules	5-2
Calibrating the Analog Current Input Module	5-3
Calibrating Your Analog Current Output Module	5-7
Calibrating the Analog Voltage Input Module	5-13
Calibrating Your Analog Voltage Output Module	5-16

This chapter describes how to calibrate analog modules. **Your analog I/O module comes from the factory already calibrated,** with a default calibration. You may choose to recalibrate your module to increase its accuracy for your specific application.

This chapter is divided into two sections:

- calibrating input modules and
- calibrating output modules.

You do not have to configure a module before you calibrate it. If you decide to calibrate your analog I/O modules first, you can configure it at the same time.

IMPORTANT

Analog I/O modules can be calibrated on a channel by channel basis or with the channels grouped together. Regardless of which option you choose, we recommend you calibrate all channels on your module each time you calibrate. This will help you maintain consistent calibration readings and improve module accuracy.

Calibration is meant to correct any hardware inaccuracies that may be present on a particular channel or in your system. The calibration procedure compares a known standard, either input signal or recorded output, with the channel's performance and then calculates a linear correction factor between the measured and the ideal.

The linear calibration correction factor is applied on every input or output the same to obtain maximum accuracy.

When you calibrate input modules, you use current or voltage calibrators to send a signal to the module to calibrate it.

When you calibrate output modules, you use a digital multimeter (DMM) to measure the signal the module is sending out.

Tools Required to Calibrate Your Analog Modules

To maintain your module's accuracy specifications, we recommend you use calibration instruments with specific ranges. The following table lists the recommended instruments for each module.

Module:	Recommended instrument ranges:
1734-IE2C	1.00 to 20.00mA (+/-0.15µA) source Current
1734-OE2C	DMM better than 0.6µA
1734-IE2V	Voltage source 0.0 to 10.0V (±0.3mV)
1734-OE2V	Digital Multimeter (better than 0.5mV)

You must be online to calibrate your analog I/O modules. We recommend the module not be actively controlling a process when you calibrate it.

IMPORTANT The module will ignore output data sent to the module until after calibration ends. This could be hazardous if active control were attempted during calibration

Calibration consists of the following steps:

1. Connect in calibration system as shown.
2. Allow system to warmup for at least 10 minutes.
3. Connect current or voltage source to channel being calibrated. Apply 4mA (current) or 0V (voltage).
4. Begin calibration.
5. Select both channels.
6. Accept Low cal (both status indicators blink).
7. Set current or voltage source to high value (20mA current; or +10V voltage)
8. Accept High cal (channel 0 status indicator turns off if calibration was good, but channel 1 status indicator still blinks).
9. Connect current or voltage source to channel 1.

10. With high cal now applied to channel 1, accept High cal for channel 1.

11. Set current or voltage source to Low value.

12. Accept Low cal for channel 1.

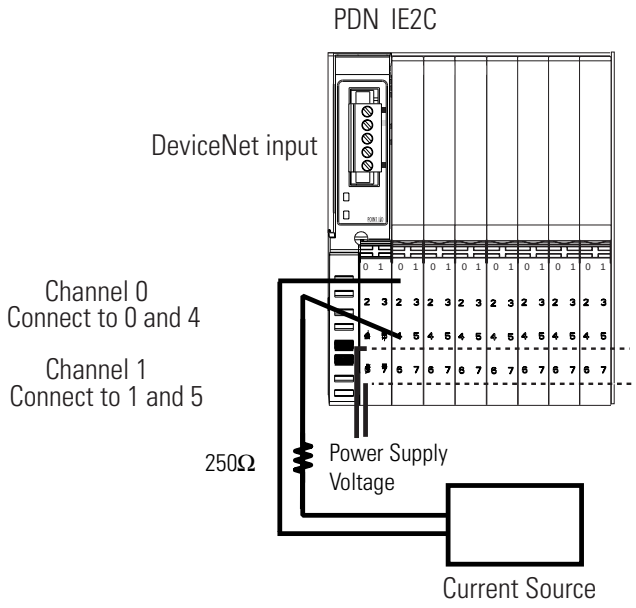
13. This completes calibration.

Calibrating the Analog Current Input Module

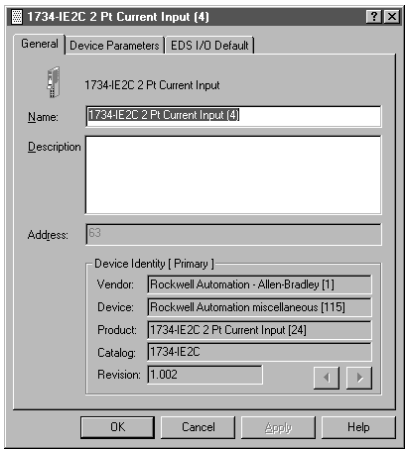
To calibrate your current input module, connect the module in a DeviceNet system similar to that shown below.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module.

.



1. Double-click on the icon to bring up the general parameter screen.

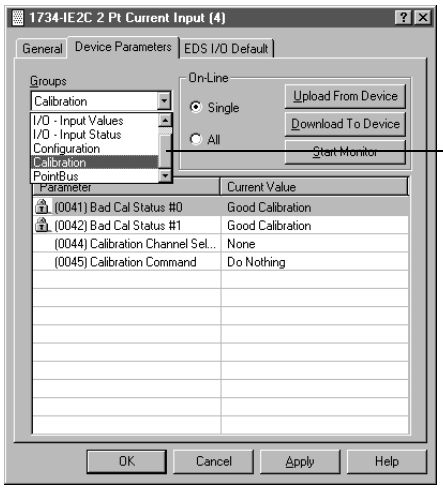


Click on Device Parameters to view the parameters

2. The EDS editor will ask you if you want to upload the configuration from the device. Click on Upload.

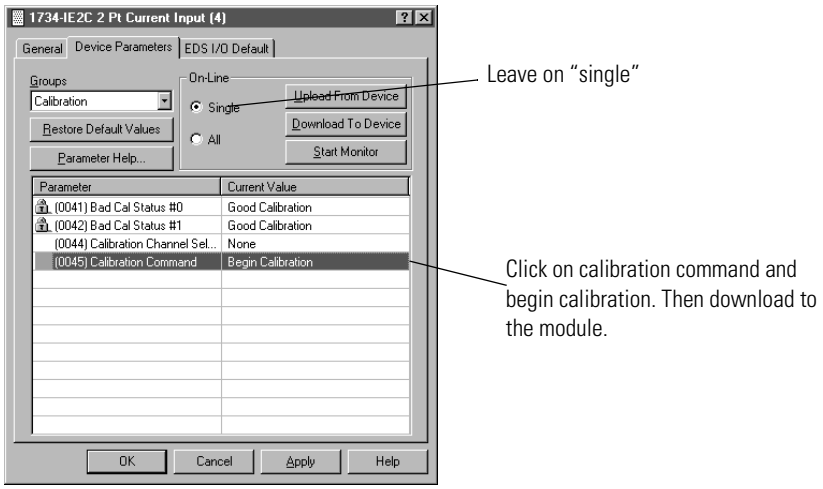
EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

3. Select Calibration at the Group pulldown.

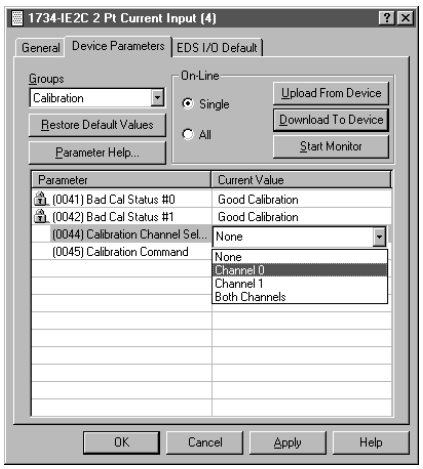


This is the group pulldown.

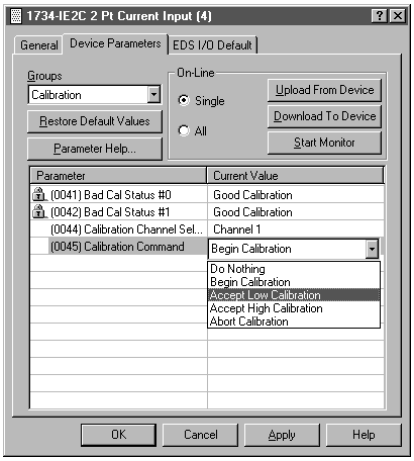
4. Click on Calibration Command and select Begin Calibration. Click the Download to Device button. Both channel status indicators turn off.



5. Click on Calibration Channel Set to bring up channel selections. Select a channel. Click the Download to Device button.



6. Apply 4.00mA to the input. Click on Accept Low Calibration. Click on the Download to Device button. The status indicator(s) for the channel(s) being calibrated will blink.



7. Set the current source to 20mA. Click on Accept High Calibration. Click on the Download to Device button.

8. Calibration is complete as soon as High and Low calibration for the selected channels are done successfully.

Repeat above steps to calibrate the other channel. Both high and low inputs must be accepted in order for the module to finish calibration.

Calibration is now complete.

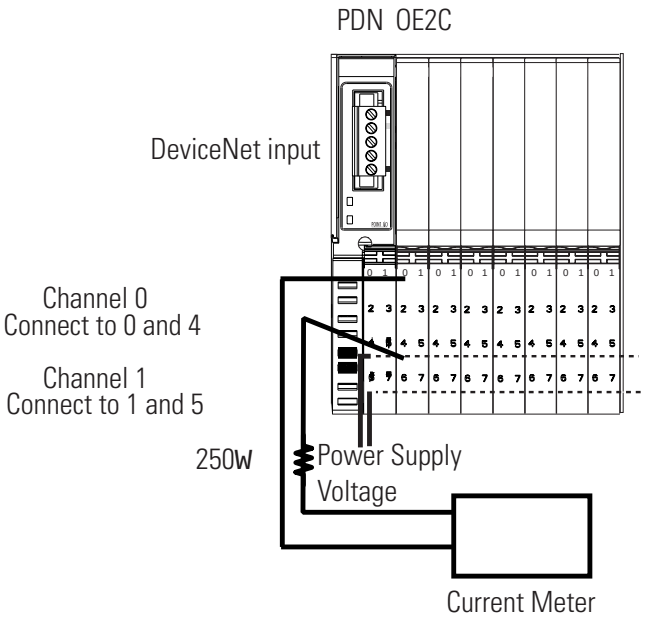
If the module does not accept calibration (status indicator still blinking), click on Abort Calibration and start over.

Calibrating Your Analog Current Output Module

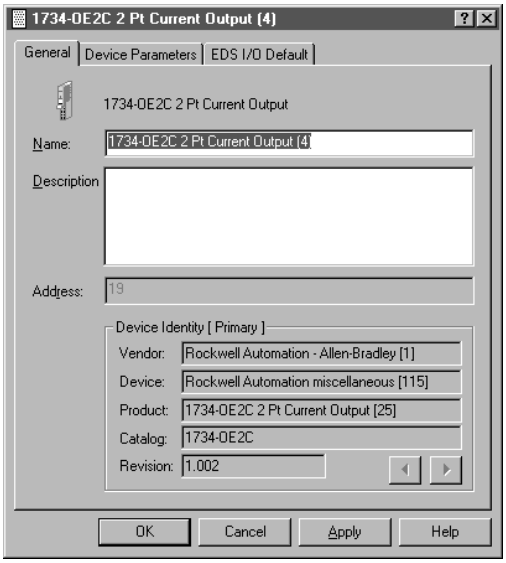
To calibrate your output module, connect the module in a DeviceNet system similar to that shown below.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module.

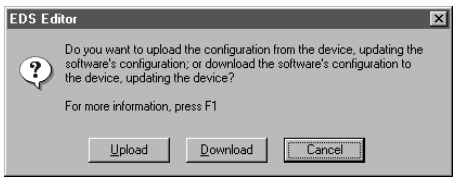
.



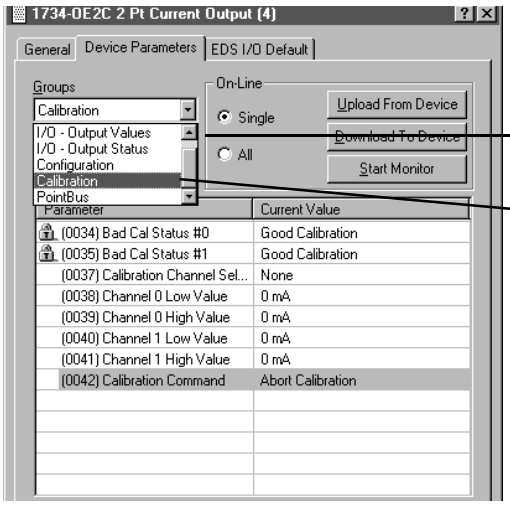
1. Double-click on the icon to bring up the general parameter screen.



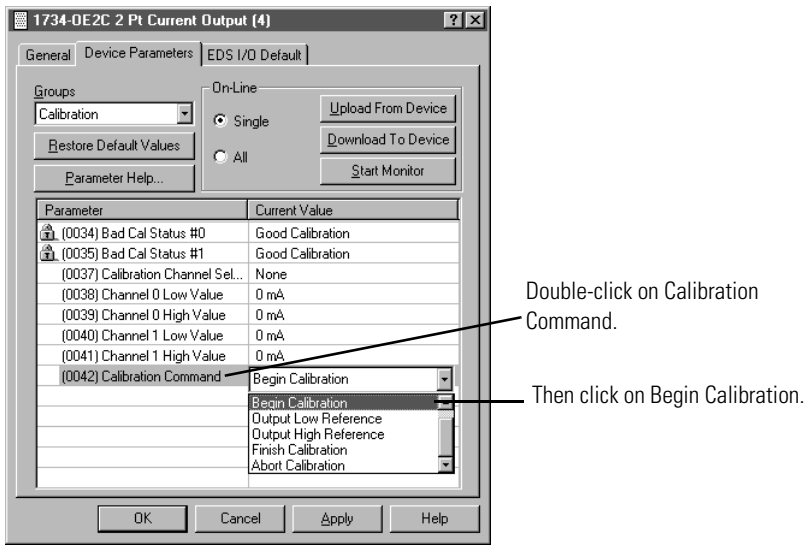
2. The EDS editor will ask you if you want to upload the configuration from the device. Click on Upload.


EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

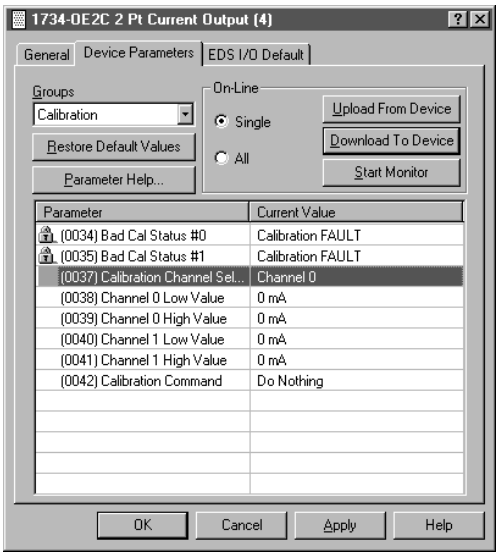
3. Select Calibration at the Group pulldown.



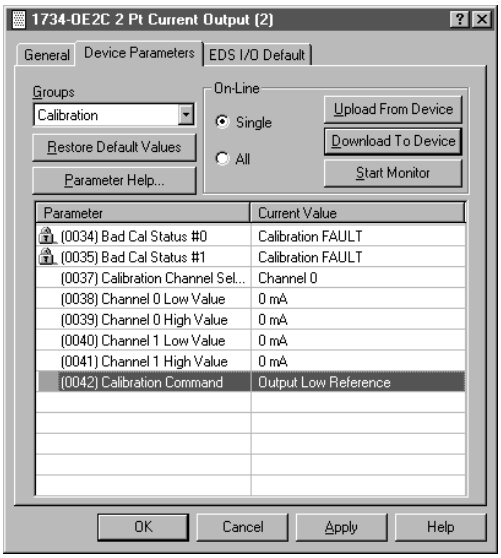
4. Click on Calibration Command and select Begin Calibration. Click on the Download to Device button.



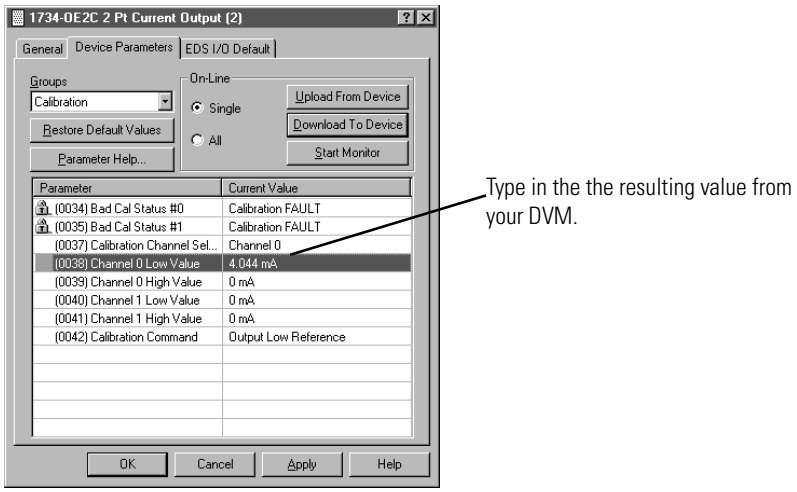
5. Click on Calibration Channel Sel to bring up channel selections. Select a channel. Click on the Download to Device button.



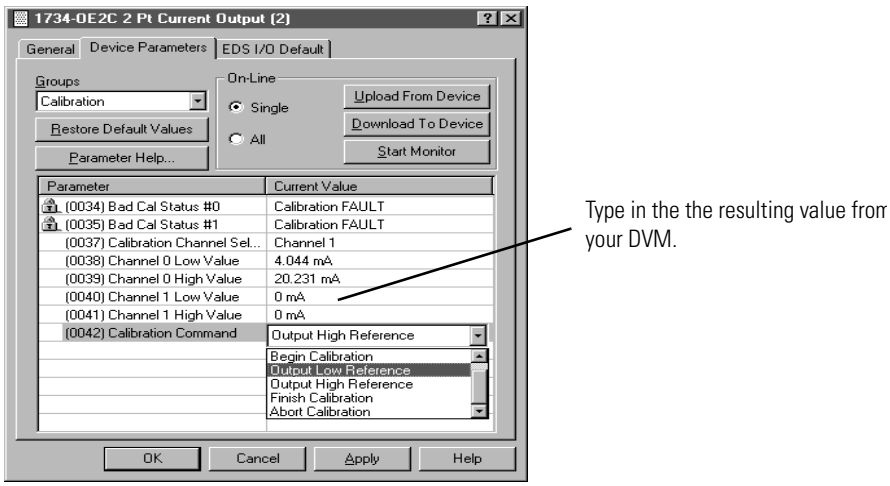
6. Select Output Low Reference and download to the module. The selected channel status indicator will blink green.



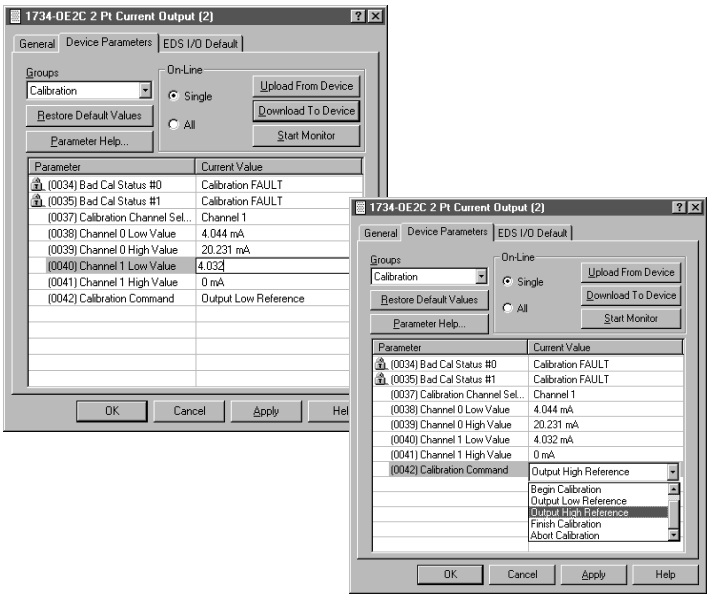
7. Enter the value shown on your DVM for the Channel Low Value. (4.044 in the example).



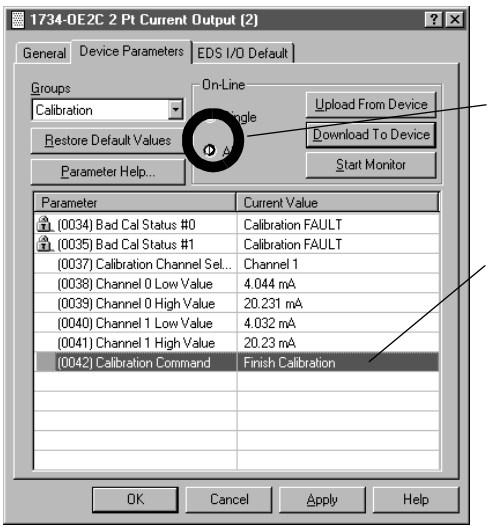
8. Select the Output High Value and download to the module. Enter the value shown on the DVM onto your screen. (20.23 in this example)



9. Repeat the above for the other channel.



10. Select All and click on Finish Calibration to complete the calibration process.



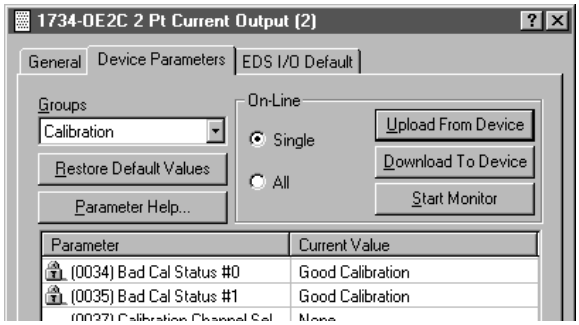
2. Click on All. This will assure that all changes are downloaded at once.

1. Click on Finish Calibration.

3. Then click on Apply.

11. You will be prompted to download to the module. Click on the Yes button.

12. If calibration was accomplished, the Cal Status will reflect "good."



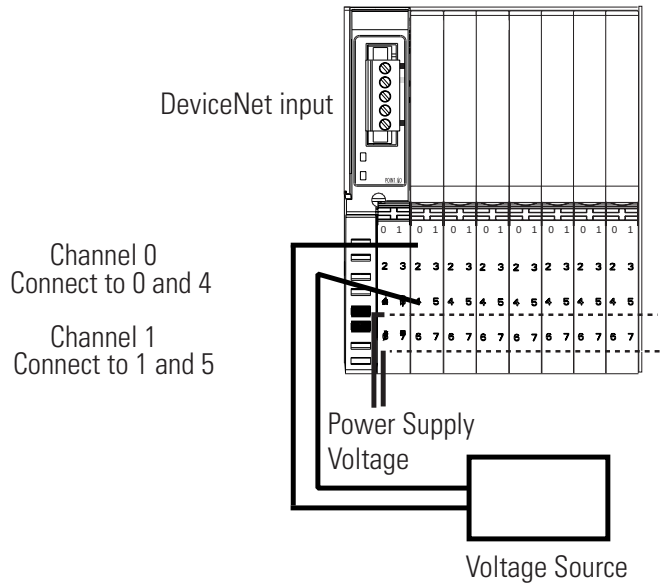
Your module is now calibrated.

Calibrating the Analog Voltage Input Module

To calibrate your voltage input module, connect the module in a DeviceNet system similar to that shown below.

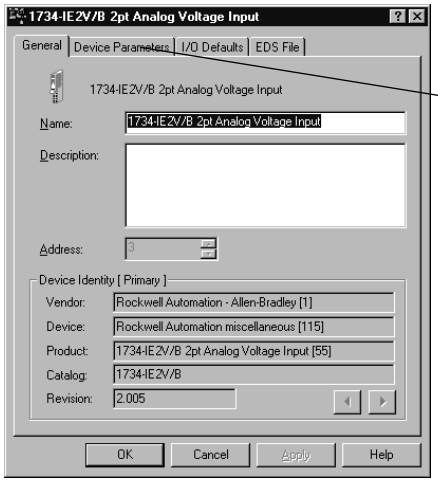
IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module.

.



You can calibrate both voltage input channels at the same time using one voltage source.

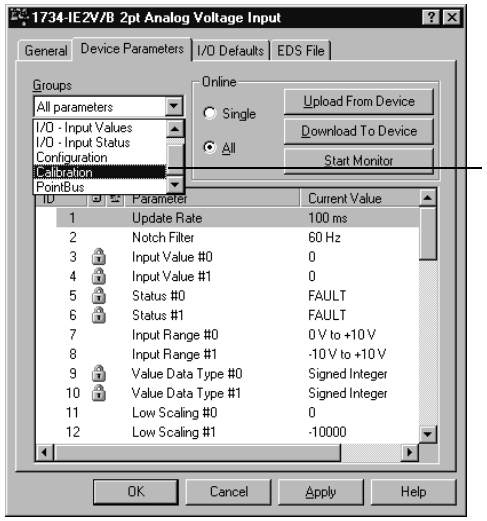
1. Double-click on the icon to bring up the general parameter screen.



2. The EDS editor will ask you if you want to upload the configuration from the device. Click on Upload.

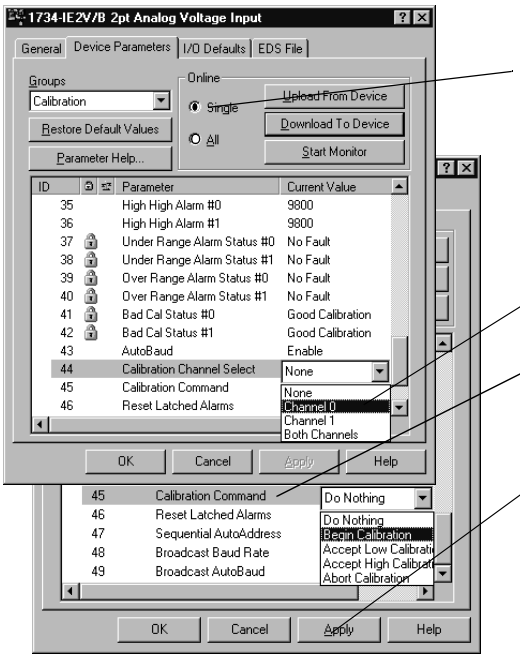
EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

3. Select Calibration at the Group pulldown.



This is the group pulldown.

4. Select your channel(s). Click on Calibration Command and apply. Click the Download to Device button. Both channel status indicators turn off.



Leave on “single”

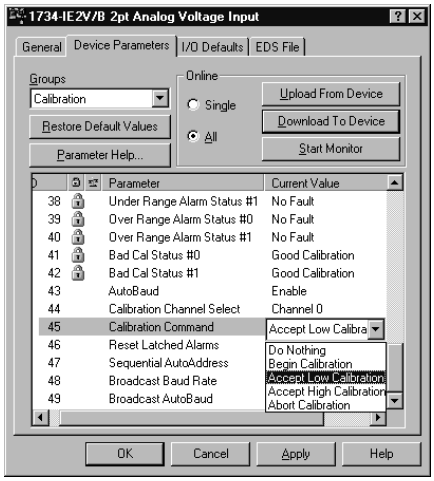
1. Select channel(s).

2. Click on calibration command.

3. Apply.

4. Then download to the module.

5. Apply 0.0V to the input. Click on Accept Low Calibration. Click on the Download to Device button. The status indicator(s) for the channel(s) being calibrated will blink.



6. Set the voltage source to +10.0V. Click on Accept High Calibration. Click on the Download to Device button.

7. Calibration is complete as soon as High and Low calibration for the selected channels are done successfully.

Repeat above steps to calibrate the other channel, if desired. Both high and low inputs must be accepted in order for the module to finish calibration.

Calibration is now complete.

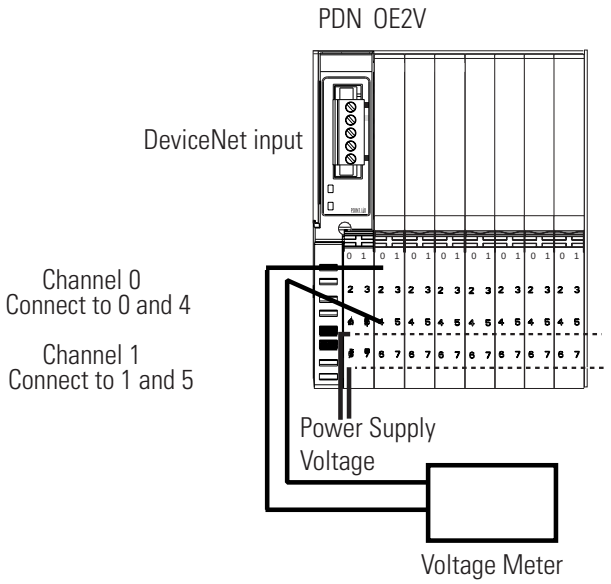
If the module does not accept calibration (status indicator still blinking), click on Abort Calibration and start over.

Calibrating Your Analog Voltage Output Module

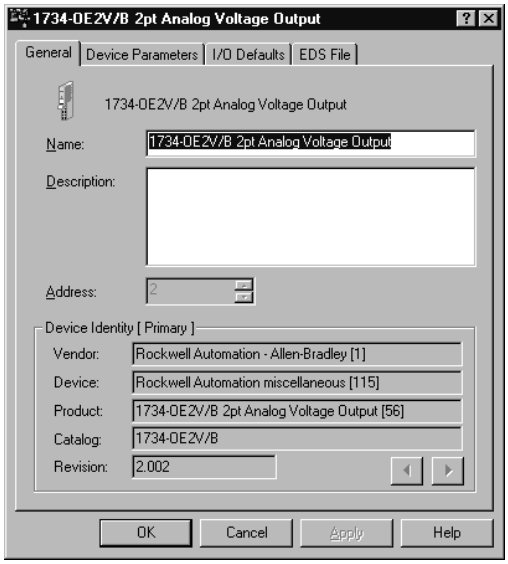
To calibrate your output module, connect the module in a DeviceNet system similar to that shown below.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module.

.



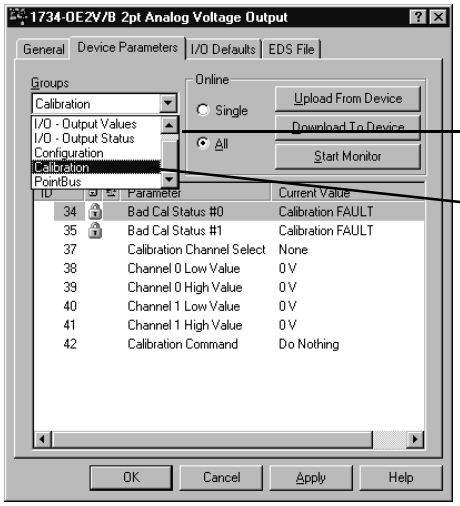
1. Double-click on the icon to bring up the general parameter screen.



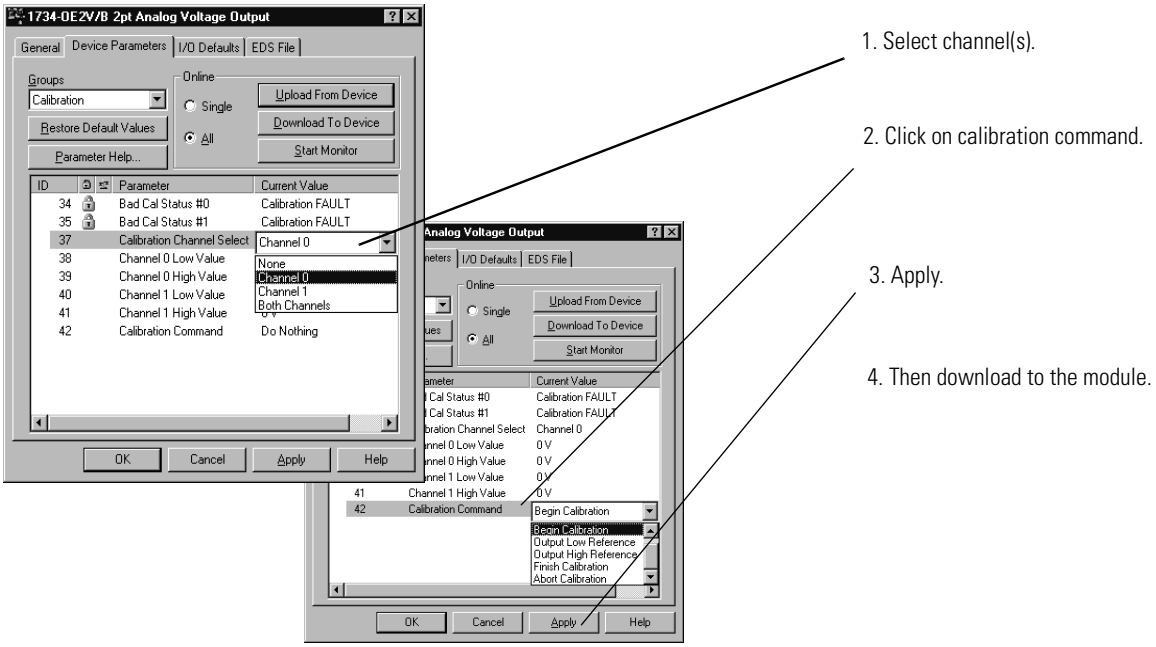
2. The EDS editor will ask you if you want to upload the configuration from the device. Click on Upload.

EDS Editor
Do you want to upload the configuration from the device, updating the software's configuration; or download the software's configuration to the device, updating the device?
For more information, press F1
Upload
Download
Cancel

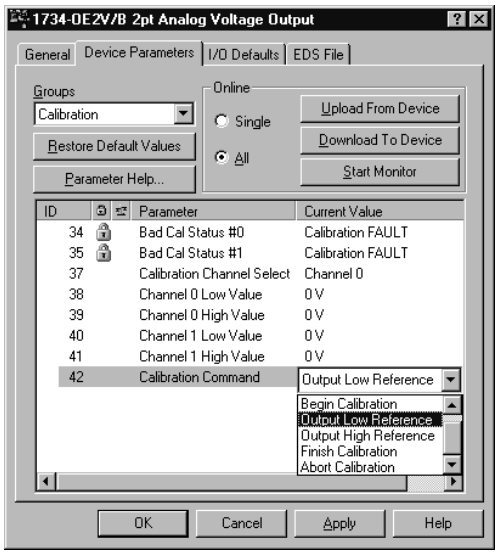
3. Select Calibration at the Group pulldown.



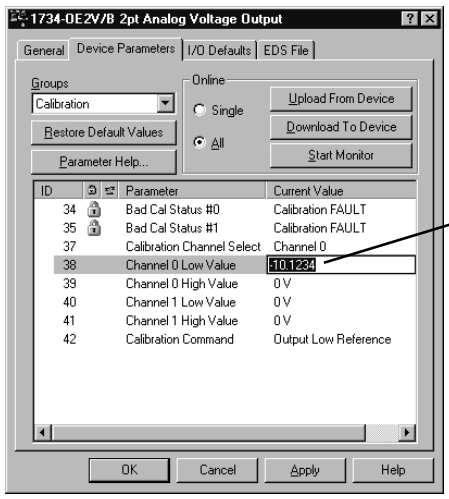
4. Select your channel(s). Click on Calibration Command and apply. Click the Download to Device button. The channel status indicator turns offSelect a channel. Click on the Download to Device button..



5. Select Output Low Reference and download to the module. The selected channel status indicator will blink green.

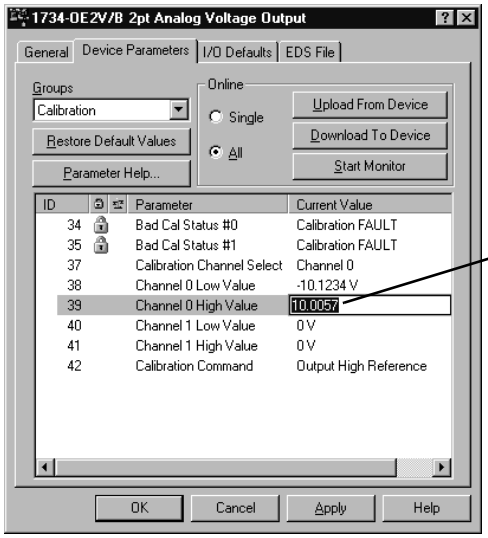


6. Enter the value shown on your DVM for the Channel Low Value. (-10.1234 in the example).



Type in the the resulting value from your DVM.

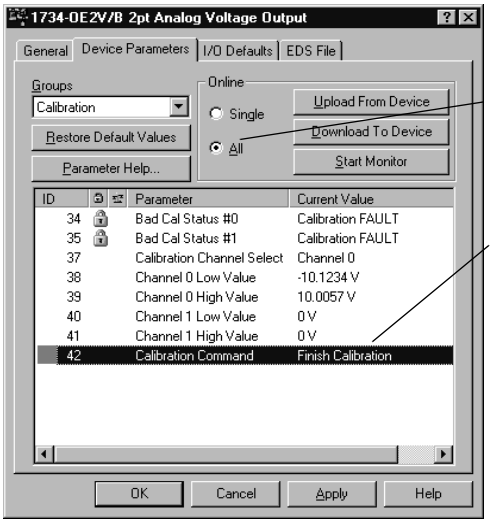
7. Select the Output High Value and download to the module. Enter the value shown on the DVM onto your screen. (10.0057 in this example)



Type in the the resulting value from your DVM.

8. Repeat the above for the other channel.

9. Select All and click on Finish Calibration to complete the calibration process.

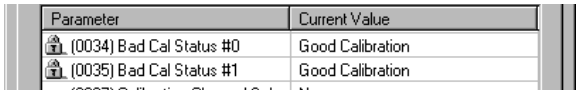


1. Click on All. This will assure that all changes are downloaded at once.

2. Then click on Finish Calibration.

10. You will be prompted to download to the module. Click on the Yes button.

11. If calibration was accomplished, the Cal Status will reflect "good."



Your module is now calibrated.

Troubleshooting with the Indicators

General Information

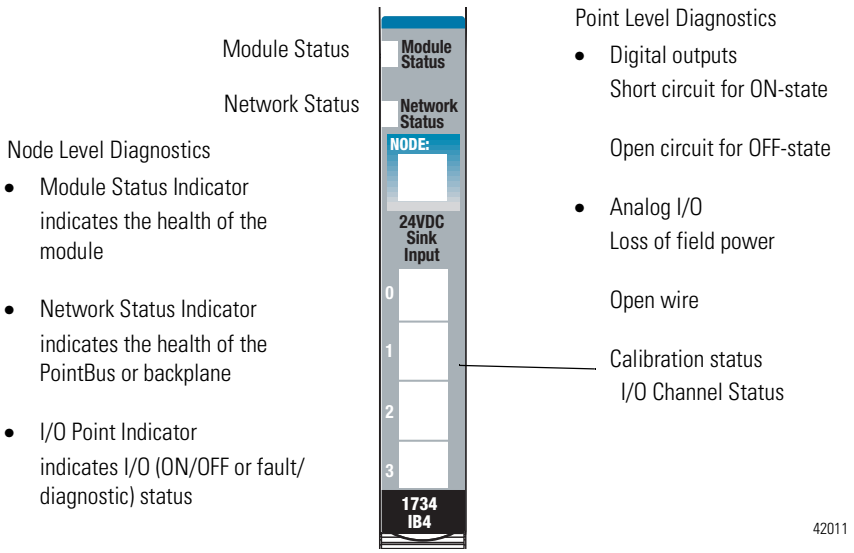
POINT I/O modules provide a variety of LED indicators:

- module status
- network status
- power indication
- calibration status
- I/O point status (ON/OFF/fault or diagnostic)

Refer to each module's individual indicators later in this document for detailed information.

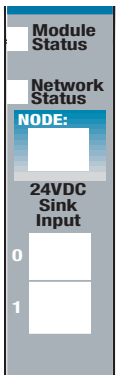
About the POINT I/O Modules' Diagnostics

All status and diagnostic information (strobed, polled, cyclic, or change-of-state) is reported back over the network communication adapter. A single point of failure is detected and reported at the module and to the control system.



Network and Module Status Indications

The network and module status indications are the same for all modules. These indications are indicated below.



Module Status

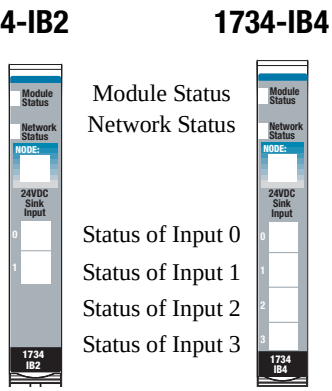
Network Status

Indication	Probable Cause
Module Status	
Off	No power applied to device
Green	Device operating normally
Flashing Green	Device needs commissioning due to configuration missing, incomplete or incorrect.
Flashing Red	Recoverable fault.
Red	Unrecoverable fault may require device replacement
Flashing Red/Green	Device is in self-test
Network Status	
Off	Device is not on-line - Device has not completed dup_MAC_id test. - Device not powered - check module status indicator
Flashing Green	Device is on-line but has no connections in the established state.
Green	Device on-line and has connections in the established state.
Flashing Red	One or more I/O connections in timed-out state
Red	Critical link failure - failed communication device. Device detected error that prevents it communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identify Communication Faulted Request - long protocol message.

Troubleshooting the POINT I/O Digital Modules with the Indicators

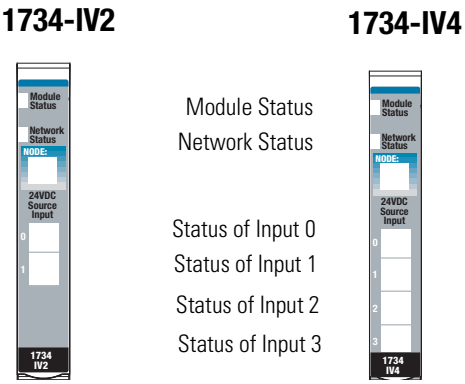
The I/O status indicators provide input and output indications for each module. Individual meanings are indicted below.

1734-IB2 and IB4 Sink Input Modules



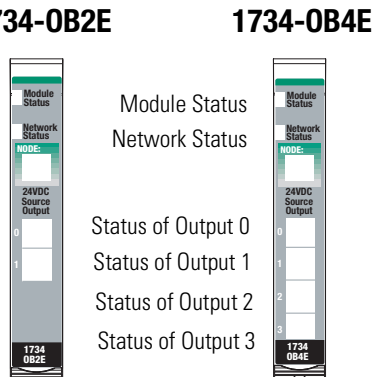
Indication	Probable Cause
I/O Status	
Off	Input is in the off-state
Yellow	Input is in the on-state

1734-IV2 and -IV4 Source Input Modules



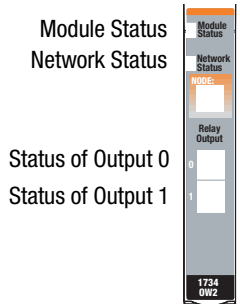
Indication	Probable Cause
I/O Status	
Off	Input is in the off-state.
Yellow	Input is in the on-state.

1734-OB2E and -OB4E Output Modules



Indication	Probable Cause
I/O Status	
Off	Output is off.
Yellow	Output is on.
Flashing Red	Open circuit detected. No load. (Off-State only)
Red	Short circuit detected. (On-State only)

1734-OW2 Relay Output Modules

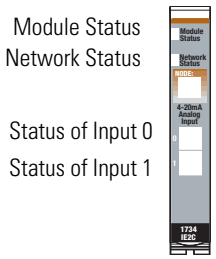


Indicator	Indication	Probable Cause
I/O Status		
	Off	Output is off (contacts open).
	Yellow	Output is on (contacts closed).

Troubleshooting the Analog Modules with the Indicators

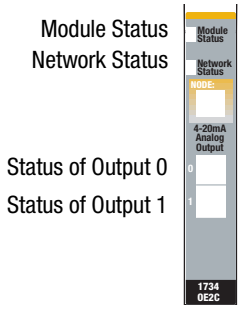
Each analog module has I/O indicators to show the status of the inputs/outputs. Refer to the individual module for I/O status information.

1734-IE2C Analog Current Input Module



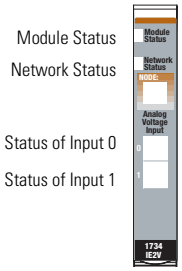
Indication	Probable Cause
Channel Status	
Off	Module in CAL mode
Solid Green	Normal (channel scanning inputs)
Flashing Green	Channel being calibrated
Solid Red	No power or major channel fault
Flashing Red	Channel at end of range (0mA or 21mA)

1734-OE2C Analog Current Output Module



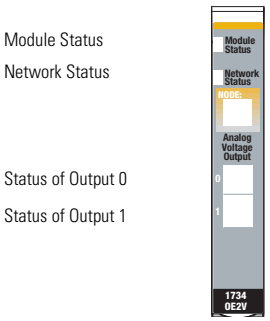
Indication	Probable Cause
Channel Status	
Off	Module in CAL mode.
Solid Green	Channel actively controlling outputs
Flashing Green	Channel calibrating.
Solid Red	Unrecoverable fault may require device replacement
Flashing Red	No power, or open wire

1734-IE2V Analog Voltage Input Module



Indication	Probable Cause
Channel Status	
Off	Module in CAL mode
Solid Green	Normal (channel scanning inputs)
Flashing Green	Channel being calibrated
Solid Red	No power or major channel fault
Flashing Red	Channel at end of range (-0.25, -10.25 or +10.25V)

1734-OE2V Analog Voltage Output Module

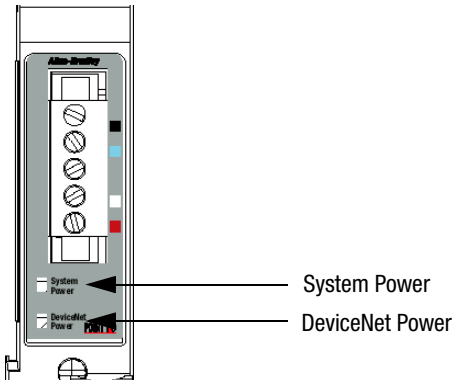


Indication	Probable Cause
Channel Status	
Off	Module in CAL mode.
Green	Normal - channel actively controlling outputs.
Flashing Green	Channel being calibrated.
Flashing Red	A Low or High clamp alarm
Solid Red	No field power.

Troubleshooting the POINT I/O Communication Modules with the Indicators

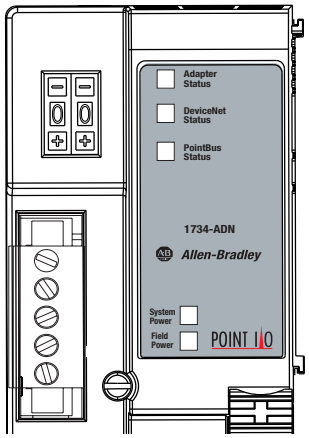
The status indicators on the communication modules provide system power and DeviceNet power indications. Individual meanings are indicted below.

1734-PDN DeviceNet Communication Interface Module



Indicator	Indication	Probable Cause
System Power	Off	Not active. DeviceNet power is off, or dc-dc converter problem.
	Green	System power on. dc-dc converter active (5V)
DeviceNet Power	Off	Not active. DeviceNet power is off.
	Green	Power on, 24V present

1734-ADN DeviceNet Adapter Module



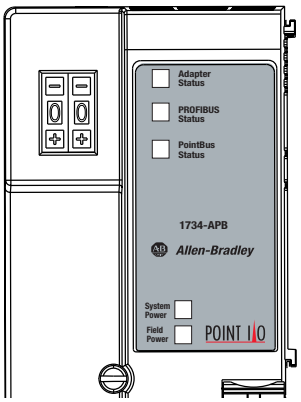
Indicator	Indication	Probable Cause
System Power	Off	Not active. field power is off, or dc-dc converter problem.
	Green	System power on. dc-dc converter active (5V)
Field Power	Off	Not active. Field power is off.
	Green	Power on, 24V present

Indication	Probable Cause
Adapter Status	
Off	No power applied to device
Green	Device operating normally
Flashing Green	Device needs commissioning due to configuration missing, incomplete or incorrect.
Flashing Red	Recoverable fault.
Red	Unrecoverable fault may require device replacement
Flashing Red/Green	Device is in self-test
PointBus Status	
Off	Device is not on-line - Device has not completed Dup_MAC_ID test. - Device not powered - check module status indicator
Flashing Green	Device is on-line but has no connections in the established state.
Green	Device on-line and has connections in the established state.

Indication	Probable Cause
Flashing Red	One or more I/O connections in timed-out state
Red	Critical link failure - failed communication device. Device detected error that prevents it communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identify Communication Faulted Request - long protocol message.

DeviceNet Status	
Off	Device is not on-line - Device has not completed dup_MAC_id test. - Device not powered - check module status indicator
Flashing Green	Device is on-line but has no connections in the established state.
Green	Device on-line and has connections in the established state.
Flashing Red	One or more I/O connections in timed-out state
Red	Critical link failure - failed communication device. Device detected error that prevents it communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identify Communication Faulted Request - long protocol message.

1734-APB PROFIBUS Adapter Module



Indicator	Indication	Probable Cause
System Power	Off	System power not applied.
	Green	System power (5V) present
Field Power	Off	Field power not applied.
	Green	Field power (24V) applied.

Indication	Probable Cause
Adapter Status	
Off	No power supplied. Hardware check in progress. Initialization in progress.
Green	Operating normally
Red	Hardware check fault.
PointBus Status	
Off	No power supplied. Hardware check in progress. Initialization in progress.
Green	Normal operation.
Flashing Red	1Hz - Incorrect POINT I/O module installed. POINT I/O module removed from backplane.
Red	Critical link failure (BUS_OFF).
PROFIBUS Status	
Off	No power supplied. Bus is off-line.
Green	Bus is online (data exchange).
Flashing Green	Adapter has received a CLEAR command from the master.
Red	Error in PROFIBUS initialization. No modules installed in the backplane.
Flashing Red	1Hz - Check_Configuration telegram rejected. - Maximum number of POINT I/O modules in master configuration overridden. 2Hz - SetPrm telegram rejected. - The first byte in user parameter data does not equal zero. - Maximum number of user parameter bytes overridden.

Specifications

To view specifications for: **POINT I/O**	Catalog Number	See page:
Sink Input Digital Modules	1734-IB2, -IB4	A-2
Source Input Digital Modules	1734-IV2, -IV4	A-4
Digital Output Modules	1734-OB2E, -OB4E	A-6
Relay Output Modules	1734-OW2	A-8
220V ac 2 Input Module	1734-IM2	A-10
120V ac 2 Input Module	1734-IA2	A-11
120/220V ac 2 Output Module	1734-OA2	A-12
Current Input Analog Module	1734-IE2C	A-13
Voltage Input Analog Module	1734-IE2V	A-15
Current Output Analog Module	1734-OE2C	A-17
Voltage Output Analog Module	1734-OE2V	A-19
DeviceNet Communication Interface Module	1734-PDN	A-21
Power Supply Module	1734-PS	A-23
Field Potential Distributor Module	1734-FPD	A-25
RTD Input Analog Module	1734-IR2	A-26
Thermocouple Input Module	1734-IT2I	A-28
5V Very High Speed Counter Module	1734-FPD	A-30
5V Very High Speed Counter Module	1734-VHSC5	A-30
24V Very High Speed Counter Module	1734-VHSC24	A-32
5V Encoder/Counter Module	1734-IJ	A-34
24V Encoder/Counter Module	1734-IK	A-36
POINTBlock I/O		
dc 8 Input/8 Output Module	1734D-IB8XOB8E, -IB8XOB8ES	A-38
dc 8 Input/8 Relay Output Module	1734D-IB8XOW8, -IB8XOW8S	A-40
ac 8 Input/8 Output Module	1734D-IA8XOA8, IA8XOA8S	A-42
ac 8 Input/8 Relay Output Module	1734D-IA8XOW8, IA8XOW8S	A-44
16 ac Input Module	1734D-IA16, -IA16S	A-46
16 dc Input Module	1734D-IB16, -IB16S	A-48

POINT I/O

Sink Input Digital Modules

Specifications - 1734-IB2 and -IB4 Input Modules	
Input Specifications (IEC 3 24V dc Input Compliant)	
Inputs per Module	1734-IB2 - 2 (1 group of 2), sinking 1734-IB4 - 4 (1 group of 4), sinking
ON-State Voltage	10V dc minimum 24V dc nominal 28.8V dc maximum
ON-State Current	2mA minimum 4mA nominal @ 24V dc 5mA maximum
OFF-State Voltage	5V dc maximum
OFF-State Current	1.5mA minimum
Input Impedance	4.7K Ω maximum, 3.6K Ω nominal
Input Filter Time[1] OFF to ON ON to OFF	 0.5 hardware plus 0-63ms (user selectable) 0.5 hardware plus 0-63ms (user selectable)
Indicators	1 green/red network status indicator, logic side 1 green/red module status indicator, logic side **1734-IB2** 2 yellow input status indicators, logic side **1734-IB4** 4 yellow input status indicators, logic side
Keyswitch Position	1
General Specifications	
Module Location	1734-MB mounting base
Pointbus Current	75 mA maximum @ 5V dc
Power Dissipation	1734-IB2 - 0.7W maximum @ 28.8V dc 1734-IB4 - 0.9W maximum @ 28.8V dc
Thermal Dissipation	1734-IB2 - 2.4 BTU/hr maximum @ 28.8V dc 1734-IB4 - 3.1 BTU/hr maximum @ 28.8V dc
Isolation Voltage (Minimum)	Tested to 1250V ac rms
Field Power Bus Supply Voltage Voltage Range	 24V dc nominal 10-28.8V dc
Dimensions Inches (Millimeters)	2.2H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG gauge (2.5mm²) - 22 AWG gauge (0.25mm²) solid or stranded maximum 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)

Specifications continued on next page.

Field Wiring Terminations	**1734-IB2** 0 - Input 0 1 - Input 1 2 - No Connection 3 - No Connection 4 - Common 5 - Common 6 - User Supply 7 - User Supply **1734-IB4** 0 - Input 0 1 - Input 1 2 - Input 2 3 - Input 3 4 - Common 5 - Common 6 - User Supply 7 - User Supply
Mass	1734-IB2 - 1.09 oz/30.9 grams 1734-IB4 - 1.12 oz/31.8 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives C-Tick marked for all applicable acts DeviceNet compatible as certified by ODVA, Inc

1 Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off filter time is the time from the input signal dropping below the valid level to recognition by the module.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Source Input Digital Modules

Specifications - 1734-IV2, and -IV4 Source Input Modules	
Input Specifications (IEC 3 Input Compliant)	
Inputs per Module	1734-IV2 - 2 (1 group of 2) non-isolated, sourcing 1734-IV4 - 4 (1 group of 4) non-isolated, sourcing
ON-State Voltage	10V dc minimum 24V dc nominal 28.8V dc maximum
ON-State Current	2mA minimum 4mA nominal @ 24V dc 5mA maximum
OFF-State Voltage	5V dc maximum
OFF-State Current	1.5mA minimum
Input Impedance	4.7K Ω maximum, 3.6K Ω nominal
Input Filter Time[1] OFF to ON ON to OFF	 0.5 hardware plus 0-63ms (user selectable) 0.5 hardware plus 0-63ms (user selectable)
Indicators	1 green/red network status indicator, logic side 1 green/red module status indicator, logic side **1734-IV2** 2 yellow input status indicators, logic side **1734-IV4** 4 yellow input status indicators, logic side
Keyswitch Position	1
General Specifications	
Module Location	1734-MB mounting base
Pointbus Current	75mA maximum @ 5V dc
Power Dissipation	1734-IV2 - 0.7W maximum @ 28.8V dc 1734-IV4 - 0.9W maximum @ 28.8V dc
Thermal Dissipation	1734-IV2 - 2.4 BTU/hr maximum @ 28.8V dc 1734-IV4 - 3.1 BTU/hr maximum @ 28.8V dc
Isolation Voltage (minimum)	Tested to 1250V ac rms
Field Power Bus Supply Voltage Voltage Range	 24V dc nominal 10-28.8V dc
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded maximum 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)

Specifications continued on next page.

Field Wiring Terminations	**1734-IV2** 0 - Input 0 1 - Input 1 2 - No Connection 3 - No Connection 4 - Common 5 - Common 6 - User Supply 7 - User Supply **1734-IV4** 0 - Input 0 1 - Input 1 2 - Input 2 3 - Input 3 4 - Common 5 - Common 6 - User Supply 7 - User Supply
Mass	1734-IV2 - 1.10 oz/31.2 grams 1734-IV4 - 1.12 oz/31.8 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc

1 Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off filter time is the time from the input signal dropping below the valid level to recognition by the module.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Digital Output Modules

Specifications - 1734-OB2E and -OB4E Protected Output Modules	
Output Specifications	
Number of Outputs	1734-OB2E - 2 (1 group of 2), sourcing 1734-OB4E - 4 (1 group of 4), sourcing
ON-State Voltage Range	10V dc minimum 24V dc nominal 28.8V dc maximum
ON-State Voltage Drop	0.2V dc maximum
ON-State Current	1.0mA minimum per channel
OFF-State Voltage	28.8V dc maximum
OFF-State Leakage	0.5mA maximum
Output Signal Delay[1] OFF to ON ON to OFF	 0.1ms maximum 0.1ms maximum
Output Current Rating	Maximum 1.0A per output 2.0A maximum per module
Surge Current	2A for 10ms, repeatable every 3 seconds
Indicators (field side indication, logic driven)	**1734-OB2E** 2 yellow output status; 2 red output fault 2 green/red module/network status **1734-OB4E** 4 yellow output status; 4 red output fault 2 green/red module/network status
Keyswitch Position	1
General Specifications	
Module Location	1734-TB or -TBS wiring base assembly
Pointbus Current	75mA maximum @ 5V dc
Power Dissipation	1734-OB2E - 0.8W maximum @ 28.8V dc 1734-OB4E - 1.2W maximum @ 28.8V dc
Thermal Dissipation	1734-OB2E - 2.7 BTU/hr maximum @ 28.8V dc 1734-OB4E - 4.1 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V ac rms
External dc Power Supply Voltage Voltage Range Supply Current	 24V dc nominal 10 to 28.8V dc 1734-OB2E - 8mA 1734-OB4E - 16mA
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded maximum 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)

Specifications continued on next page.

Field Wiring Terminations	**1734-OB2E** 0 - Output 0 1 - Output 1 2 - Output 0 3 - Output 1 4 - Common 5 - Common 6 - Supply 7 - Supply **1734-OB4E** 0 - Output 0 1 - Output 1 2 - Output 2 3 - Output 3 4 - Common 5 - Common 6 - Common 7 - Common
Mass	1734-OB2E - 1.15 oz/32.60 grams 1734-OB4E - 1.17 oz/33.17 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Off/on delay is time from a valid output "on" signal to output energization. On/off delay is time from a valid output "off" signal to output deenergization.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

Relay Output Modules

Specifications - 1734-OW2 Output Relay Module	
Outputs per Module	2 Form A isolated (normally open) electromechanical relays
Off-State Leakage Current (max at 240V ac)	1.2mA and bleed resistor thru snubber circuit
Output Voltage Range (load dependent)	5-28.8V dc @ 2.0A resistive 48V dc @ 0.5A resistive 125V dc @ 0.25A resistive 125V ac @ 2.0A resistive 240V ac @ 2.0A resistive
Output Current Rating (at rated power)	**Resistive** 2A @ 5-28.8V dc 0.5A @ 48V dc 0.25A @ 125V dc 2A @ 125V ac 2A @ 240V ac **Inductive** 2.0A steady state @ 5-28.8V dc, L/R = 7ms 0.5A steady state @ 48V dc, L/R = 7ms 0.25A steady state @ 125V dc, L/R = 7ms 2.0A steady state, 15A make @ 125V ac, PF = cos θ = 0.4 2.0A steady state, 15A make @ 240V ac, PF = cos θ = 0.4
Power Rating (steady state)	250W max. for 125V ac resistive output 480W max. for 240V ac resistive output 60W max. for 28.8V dc resistive output 24W max. for 48V dc resistive output 31W max. for 125V dc resistive output 250VA max. for 125V ac inductive output 480VA max. for 240V ac inductive output 60VA max. for 28.8V dc inductive output 24VA max. for 48V dc inductive output 31VA max. for 125V dc inductive output
Output Signal Delay OFF to ON ON to OFF	 10ms maximum (time from valid output on signal to relay energization by module) 26ms maximum (time from valid output off signal to relay deenergization by module)
Initial Contact Resistance	30mΩ
Switching Frequency	1 operation/3s (0.3Hz at rated load) max
Operate/Release Time	10ms max
Bounce Time	1.2ms (mean)
Minimum Contact Load	100µA at 100mV dc
Expected Life of Electrical Contacts	Minimum 100,000 operations @ rated loads
Fusing	Module outputs are not fused. If fusing is desired, you must supply external fusing.
Indicators	2 green/red module/network status 2 yellow output status
Keyswitch position	7
General Specifications	
Module Location	1734-TB or -TBS wiring base assembly
Pointbus Current	80mA max @ 5V dc
Power Dissipation	0.5W max
Thermal Dissipation	1.7 BTU/hr max
Specifications continued on next page.	

Isolation Voltage	
Between any 2 sets of contacts	Tested to 2550V dc for 1s
Customer load to logic	Tested to 2550V dc for 1s
Field Power Bus	
Supply Voltage	None required
Voltage Range	240V ac max
Supply Current	2A per channel maximum, 4A per module
Dimensions Inches	2.21H x 0.47W x 2.97L
(Millimeters)	(56H x 12W x 75.5L)
Environmental Conditions	
Operational Temperature	-20 to 55°C (-4 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	12g peak acceleration, 11(±1)ms pulse width
Non-operating	50g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 2g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded copper rated at 75° or greater 3/64 inch (1.2mm) insulation maximum
Category	2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Output 0A 1 - Output 1A 2 - Output 0B 3 - Output 1B 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	1.30 oz/36.9 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

220V ac 2 Input Module

Specifications - 1734-IM2 220V ac Output Module This module is IEC 3 220V ac input compliant.	
Input Specifications	
Number of Inputs	2 (1 group of 2) non-isolated, sinking
ON-State Voltage	159V ac minimum 220V ac nominal 264V ac maximum
ON-State Current	5.7mA minimum 8.0mA nominal 9.61mA maximum
OFF-State Voltage	43V ac maximum
OFF-State Current	2.9mA maximum
Nominal Input Impedance	22.3kΩ
Delay Time[1] OFF to ON and ON to OFF	20ms hardware filter plus 1ms - 64ms digital filter programmable in increments of 1ms
Indicators	2 yellow input status, logic side 1 green/red network status, logic side 1 green/red module status, logic side
Keyswitch Position	8
General Specifications	
Module Location	1734-TB, -TBS, -TB3 or -TB3S wiring base assembly
Pointbus Current	75mA maximum @ 5V dc
Power Dissipation	0.7W maximum @ 28.8V dc
Thermal Dissipation	2.4 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1500V ac rms for 1s
External AC Power Supply Voltage	220V ac, 60Hz nominal
External AC Power Supply Voltage Range	159-264V ac, 47-63Hz
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Input 0 1 - Input 1 2 - No Connection 3 - No Connection 4 - L2N 5 - L2/N 6 - L1 7 - L1
Mass	1.09 oz/30.90 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off filter time is the time from the input signal dropping below the valid level to recognition by the module.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

120V ac 2 Input Module

Specifications - 1734-IA2 120V ac Input Module	
This module is IEC 3 120V ac Input Compliant	
Input Specifications	
Inputs per Module	2 (1 group of 2) non-isolated, sinking
ON-State Voltage	65V ac minimum 120V ac nominal 132V ac maximum
ON-State Current	3.7mA minimum 6.9mA nominal @ 120V ac, 60Hz
OFF-State Voltage	43V ac maximum
OFF-State Current	2.5mA maximum
Nominal Input Impedance	10.6kΩ
Delay Time[1] OFF to ON and ON to OFF	20ms hardware filter plus 1ms - 64ms digital filter programmable in increments of 1ms
Indicators	2 yellow input status, logic side 1 green/red network status, logic side 1 green/red module status, logic side
Keyswitch Position	8
General Specifications	
Module Location	1734-TB, TBS, TB3 or -TB3S wiring base assembly
Pointbus Current	75mA maximum @ 5V dc
Power Dissipation	0.7W maximum @ 28.8V dc
Thermal Dissipation	2.4 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V ac rms for 1s
External AC Power Supply Voltage	120V ac, 60Hz nominal
External AC Power Supply Voltage Range	85-132V ac, 47-63Hz
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Input 0 1 - Input 1 2 - No Connection 3 - No Connection 4 - L2/N 5 - L2/N 6 - L1 7 - L1
Mass	1.09 oz/30.9 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off filter time is the time from the input signal dropping below the valid level to recognition by the module.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

120/220V ac 2 Output Module

Specifications - 1734-OA2 120/220V ac Output Module	
Output Specifications	
Outputs per Module	2 non-isolated, sourcing
ON-State Voltage Range	74V ac minimum 120/220V ac nominal 264V ac maximum
ON-State Voltage Drop	1.0V maximum @ 0.75A
ON-State Current	10mA minimum per channel 750mA maximum per channel
OFF-State Leakage	2.7mA max
Output Current Rating	1.5A (2 channels @ 0.75A each)
Surge Current	16A for 100ms, repeatable every 10s
Delay Time[1] OFF to ON ON to OFF	 1/2 cycle maximum 1/2 cycle maximum
Indicators (field side indication, logic driven)	2 yellow status 2 green/red status
Keyswitch Position	8
General Specifications	
Module Location	1734-TB, TBS, TB3 or -TB3S wiring base assembly
Pointbus Current	75mA maximum @ 5V dc
Power Dissipation	0.8W maximum @ 28.8V dc
Thermal Dissipation	2.7 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1500V ac rms for 1s
External AC Power Supply Voltage	120/220V ac, 60Hz nominal
External AC Power Supply Voltage Range	85-264V ac, 47-63Hz
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Output 0 1 - Output 1 2 - No Connection 3 - No Connection 4 - L2/N Return 5 - L2/N Return 6 - L1 7 - L1
Mass	1.09 oz/30.9 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Off/on delay is time from a valid output "on" signal to output energization. On/off delay is time from a valid output "off" signal to output deenergization.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

Current Input Analog Module

Specifications - 1734-IE2C Current Input Analog Module	
Input Specifications	
Number of Inputs	2 single-ended, non-isolated
Resolution	16 bits - over 0-21mA 0.32μA/cnt
Input Current Terminal	4-20mA 0-20mA
Absolute Accuracy[1] Current Terminal	0.1% Full Scale @ 25°C
Accuracy Drift w/Temp. Current Terminal	30ppm/°C
Input Update Rate (per module)	100ms @ Notch = 60Hz (default) 120ms @ Notch - 50Hz 24ms @ Notch = 250Hz 12ms @ Notch = 500Hz
Step Response (per channel)	70ms @ Notch = 60Hz (default) 80ms @ Notch = 50Hz 16ms@ Notch = 250Hz 8ms @ Notch = 500Hz
Input Impedance	60Ω
Conversion Type	Delta Sigma
Common Mode Rejection Ratio	120dB
Normal Mode Rejection Ratio	-60dB -3db Notch filter 15.7Hz @ Notch = 60Hz 13.1Hz @ Notch = 50Hz 65.5Hz @ Notch = 250Hz 131Hz @ Notch = 500Hz
Data Format	Signed integer
Maximum Overload	Fault protected to 28.8V dc
Calibration	Factory calibrated
Indicators	1 green/red network status indicator, logic side 1 green/red module status indicator, logic side 2 green/red input status indicators, logic side
Keyswitch Position	3
General Specifications	
Module Location	1734-TB or -TBS wiring base assembly
Pointbus Current	75mA @ 5V dc
Power Dissipation	0.6W maximum @ 28.8V dc
Thermal Dissipation	2.0 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V ac rms No isolation between individual channels
External dc Power Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10mA @ 24V dc
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Specifications continued on next page.	

Environmental Conditions	
Operational Temperature	-20 to 55°C (-4 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	30g peak acceleration, 11(±1)ms pulse width
Non-operating	50g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	14 AWG gauge (2.5mm²) - 22 AWG gauge (0.25mm²) solid or stranded copper wire rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum
Category	2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Input 0 1 - Input 1 2 - Ground 0 3 - Ground 1 4 - Common 0 5 - Common 1 6 - Supply 7 - Supply
Mass	1.22 oz/34.6 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Voltage Input Analog Module

Specifications - 1734-IE2V/B 2 Voltage Input Analog Module	
Input Specifications	
Number of Inputs	2 single-ended, non-isolated
Resolution	15 bits plus sign 320μV/cnt in unipolar or bipolar mode
Input Voltage	0-10V (user configurable) (-0.0V under, +0.5V over) - default ±10V user configurable (-0.5V under, +0.5V over)
Absolute Accuracy[1]	0.1% Full Scale @ 25°C
Accuracy Drift w/Temp.	5ppm/°C
Input Update Rate (per module)	100ms @ Notch = 60Hz (default) 120ms @ Notch = 50Hz 24ms @ Notch = 250Hz 12ms @ Notch = 500Hz
Step Response (per channel)	70ms @ Notch = 60Hz (default) 80ms @ Notch = 50Hz 16ms@ Notch = 250Hz 8ms @ Notch = 500Hz
Digital Filter Time Constant	0-10,000ms (default = 0ms)
Input Impedance	100KΩ
Input Resistance	200KΩ
Conversion Type	Delta Sigma
Common Mode Rejection Ratio	120dB
Normal Mode Rejection Ratio	-60dB -3db Notch filter 15.7Hz @ Notch = 60Hz 13.1Hz @ Notch = 50Hz 65.5Hz @ Notch = 250Hz 131Hz @ Notch = 500Hz
Data Format	Signed integer
Maximum Overload	Fault protected to 28.8V dc
Calibration	Factory calibrated
Indicators	1 green/red module status indicator, logic side 1 green/red network status indicator, logic side 2 green/red input status indicators, logic side
Keyswitch Position	3
General Specifications	
Module Location	1734-TB or -TBS wiring base assembly
Pointbus Current	75mA @ 5V dc
Power Dissipation	0.75W maximum @ 28.8V dc
Thermal Dissipation	2.5 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V rms/V ac No isolation between individual channels
External dc Power Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 15mA @ 24V dc
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Specifications continued on next page.	

Environmental Conditions	
Operational Temperature	-20 to 55°C (-4 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	30g peak acceleration, 11(±1)ms pulse width
Non-operating	50g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) shielded solid or stranded copper wire rated @ 75°C or greater 3/64 inch (1.2mm) insulation maximum
Category	2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Input 0 1 - Input 1 2 - Chassis Ground 3 - Chassis Ground 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	1.22 oz/34.6 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Current Output Analog Module

Specifications - 1734-OE2C	
Output Specifications	
Number of Outputs	2 single-ended, non-isolated
Resolution Current	13 bits over 0-21mA 5.13μA/cnt
Output Current Terminal	0mA output until communication established 4-20mA user configurable 0-20mA user configurable
Absolute Accuracy[1] Current Terminal	 0.1% Full Scale @ 25°C
Accuracy Drift w/Temp. Current Terminal	 30ppm/°C
Resistive Load on mA Output	0-330Ω
Conversion Type	Digital to analog converter
Conversion Rate	16ms
Data Format	Signed Integer
Calibration	Factory calibrated
Step Response to 63% of FS	24μs
Indicators	1 green/red network status indicator, logic side 1 green/red module status indicator, logic side 2 green/red output status indicators, logic side
Keyswitch Position	4
General Specifications	
Module Location	1734-TB and -TBS
Pointbus Current	75mA @ 5V dc
Power Dissipation	Maximum 1.0W @ 28.8V dc
Thermal Dissipation	3.4 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V rms/V ac or 2200V dc for 1s between user and system No isolation between individual channels
External dc Power Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc (includes 5% ac ripple) 50mA @ 24V dc (including outputs @ 20mA)
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded copper wire rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Output 0 1 - Output 1 2 - Ground 3 - Ground 4 - Common 5 - Common 6 - Supply 7 - Supply

Specifications continued on next page.

Mass	1.26 oz/35.7 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.
2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Voltage Output Analog Module

Specifications - 1734-OE2V 2 Voltage Output Analog Module	
Output Specifications	
Number of Outputs	2 single-ended, non-isolated
Resolution	14 bits (13 plus sign) 1.28mV/cnt in unipolar or bipolar mode
Output Voltage	0V output until communication established 0-10V (user configurable) (-0.0V under, +0.5V over)- default ±10V (user configurable) (-0.5V under, +0.5V over)
Absolute Accuracy[1]	0.1% Full Scale @ 25°C
Step Response to 63% of FS	24µs
Accuracy Drift w/Temp.	5ppm/°C
Current Load on Output	3mA
Conversion Type	Digital to analog converter
Conversion Rate	20µs
Data Format	Signed Integer
Calibration	Factory calibrated
Indicators	1 green/red module status indicator, logic side 1 green/red network status indicator, logic side 2 green/red output status indicators, logic side
Keyswitch Position	4
General Specifications	
Module Location	1734-TB and -TBS
Pointbus Current	75mA @ 5V dc
Power Dissipation	1.0W maximum @ 28.8V dc
Thermal Dissipation	3.4 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to 1250V ac rms No isolation between individual channels
External dc Power Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 35mA @ 24V dc (including outputs @ 3mA)
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) shielded solid or stranded copper wire rated @ 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Output 0 1 - Output 1 2 - Chassis Ground 3 - Chassis Ground 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	1.26 oz/35.7 grams
Specifications continued on next page.	

Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.
2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

DeviceNet Communication Interface Module

Specifications - 1734-PDN Communication Interface	
Communication Interface Specifications	
Expansion I/O Capacity	12 modules
Communication Rate	125K bit/s (500m maximum) 250K bit/s (250m maximum) 512K bit/s (100m maximum)
DeviceNet Power Requirements	24V dc (+4% = 25V dc max) @ 400mA maximum
DeviceNet Cable	Allen-Bradley part number 1485C-P1-Cxxx Refer to publication DN-2.5 for more information
Module Location	Starter module - left side of 1734 system
DeviceNet Power Specifications	
Power Supply	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this interface.
Input Voltage Rating	24V dc nominal
Input Voltage Range	11-25V dc DeviceNet specification
Input Overvoltage Protection	Reverse polarity protected
Inrush Current	6A for 5ms
Indicators	2 green power supply status indicators: System Power (PointBus 5V power) DeviceNet Power (24V from DeviceNet)
General Specifications	
Pointbus Output Current	Up to 17 modules, dependent on PointBus current requirements (17 times 75mA = 1.275, just under the limit of 1.0A). The actual number of modules can vary. Add up the current requirements of the modules you want to use to make sure they do not exceed the amperage limit of the 1734-PDN. **Cat. No. PointBus Current Requirements** 1734-IB2 75mA 1734-IB4 75mA 1734-IV2 75mA 1734-IV4 75mA 1734-OB2E 75mA 1734-OB4E 75mA 1734-OW2 80mA 1734-IE2C 75mA 1734-OE2C 75mA 1734-IE2V 75mA 1734-OE2V 75mA 1734-IA2 75mA 1734-IM2 75mA 1734-OA2 75mA 1734-IJ2 160mA 1734-IK2 160mA 1734-IR2 220mA 1734-IT2 175mA 1734-VHSC5 180mA 1734-VHSC24 180mA
Power Consumption	7.0W maximum @ 25V dc
Power Dissipation	1.2W maximum @ 25V
Thermal Dissipation	4.1 BTU/hr maximum @ 25V dc
Isolation Voltage	Tested to 1528V rms or 2593V dc for 1s

Specifications continued on next page.

Field Power Bus	
Supply Voltage	10-28.8V dc range, 120V ac, or 240V ac
Supply Current	10A maximum
Dimensions Inches (Millimeters)	3.0H x 1.0W x 5.25L (76.2H x 25.4W x 133.4L)
Environmental Conditions	
Operational Temperature	-20 to 55°C (-4 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	30g peak acceleration, 11(±1)ms pulse width
Non-operating	50g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum
Category	2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	
DeviceNet	1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Shield 4 - White Wire CAN High 5 - Red Wire +V
Power Supply	0 - No Connection 1 - No Connection 2 - Chassis Ground 3 - Chassis Ground 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	4.56 oz/129.3grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives C-Tick marked for all applicable acts DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Power Supply Module

Specifications - 1734-EP24DC Power Supply Module	
I/O Module Capacity	12 modules
Power Supply	**Note:** In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter.
Input Voltage Rating	24V dc nominal 10-28.8V dc range
Field Side Power Requirements	24V dc (+20% = 28.8V dc maximum) @ 400mA maximum
Inrush Current	6A maximum for 10ms
Indicators	1 Green Field Power Status Indicator 1 Green 5V System Power Indicator
PointBus Output Current	Horizontal mounting - 1A at 10-19.2V input; 1.3A at 19.2-28.8V input Vertical mounting - 1A at 10-28.8V input
Input Overvoltage Protection	Reverse polarity protected
Interruption	Output voltage will stay within specifications when input drops out for 10ms at 10V with maximum load.
Module Location	Between I/O modules in 1734 system Breaks field power bus
Limitations	Use with POINT I/O Adapters only
General Specifications	
Power Consumption	9.8W maximum @ 28.8V dc
Power Dissipation	3.0W maximum @ 28.8V dc
Thermal Dissipation	10.0 BTU/hr maximum @ 28.8V dc
Isolation Voltage	1250V rms/V ac
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc range 10A maximum
Dimensions Inches (Millimeters)	3.00H x 1.00W x 5.25L (76.2H x 25.4W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 12g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 2g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14AWG (2.5mm^2) - 22AWG (0.25mm^2) solid or stranded wire rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - No Connection 1 - No Connection 2 - Chassis Ground 3 - Chassis Ground 4 - Common 5 - Common 6 - Supply Voltage 7 - Supply Voltage
Mass	4.38 oz/12.42 grams

Specifications continued on next page.

Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Field Potential Distributor Module

Specifications - 1734-FPD Field Potential Distributor	
Input Voltage Rating	12V dc, 24V dc nominal 10-28.8V dc range 120V ac, 240V ac nominal
Input Current	10A maximum
Indicators	None
Module Location	Between I/O modules in 1734 system Breaks power bus
General Specifications	
Pointbus Current	Pass through
Power Consumption	None
Power Dissipation	None
Thermal Dissipation	None
Isolation Voltage	Tested to 1528V ac rms
Field Power Bus Supply Voltage Supply Current	 264V ac maximum, 12V dc, 24V dc, 10-28.8V dc range 120V ac, 240V ac, 50/60Hz 10A maximum
Dimensions Inches (Millimeters)	3.00H x 1.00W x 5.25L (76.2H x 25.4W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 12g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 2g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - No Connection 1 - No Connection 2 - Chassis Ground 3 - Chassis Ground 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	4.38 oz/124.2 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

RTD Input Analog Module

Specifications - 1734-IR2 RTD Input Analog Module	
Input Specifications	
Number of Inputs	2 single-ended, non-isolated
Resolution	16 bits 9.5mV/cnt 0.03°C/cnt (Pt385 @ 25°)
Input Range	0-600Ω
Sensors Supported	100Ω Pt α = 0.00385 Euro (-200 to +870°C) 200Ω Pt α = 0.00385 Euro (-200 to +630°C) 100Ω Pt α = 0.003916 U.S. (-200 to +630°C) 200Ω Pt α = 0.003916 U.S. (-200 to +630°C) 10Ω Cu α = 0.00427 (-200 to +260°C) 100Ω Ni α = 0.00618 (-60 to +250°C) 120Ω Ni α = 0.00672 (-60 to +250°C) 120Ω Ni α = 0.00618 (-60 to +250°C)
Absolute Accuracy[1]	0.1% Full Scale @ 25°C
Accuracy Drift w/Temp.	30ppm/°C
Input Update Rate (per module)	40ms @ Notch = 50Hz 33ms @ Notch = 60Hz (default) 20ms @ Notch = 100Hz 17ms @ Notch = 120Hz 10ms @ Notch = 200Hz 8ms @ Notch = 240Hz 7ms @ Notch = 300Hz 5ms @ Notch = 400Hz 4ms @ Notch = 480Hz
Step Response (per channel)	60ms @ Notch = 50Hz 50ms @ Notch = 60Hz 30ms @ Notch = 100Hz 25ms @ Notch = 120Hz 15ms @ Notch = 200Hz 13ms @ Notch = 240Hz 10ms @ Notch = 300Hz 8ms @ Notch = 400Hz 6ms @ Notch = 480Hz
Conversion Type	Delta Sigma
Common Mode Rejection Ratio	120dB
Normal Mode Rejection Ratio	100dB -3db Notch filter 13.1Hz @ Notch = 50Hz 15.7Hz @ Notch = 60Hz 26.2Hz @ Notch = 100Hz 31.4Hz @ Notch = 120Hz 52.4Hz @ Notch = 200Hz 62.9Hz @ Notch = 240Hz 78.6Hz @ Notch = 300Hz 104.8Hz @ Notch = 400Hz 125.7Hz @ Notch = 380Hz
Data Format	Signed integer
Maximum Overload	No input protection
Specifications continued on next page.	

Calibration	Factory calibrated
Indicators	1 green/red module status indicator, logic side 1 green/red network status indicator, logic side 2 green/red input status indicators, logic side
Keyswitch Position	6
General Specifications	
Module Location	1734-TB or -TBS wiring base assembly
Pointbus Current	220mA @ 5V dc
Power Dissipation	1.0W maximum
Thermal Dissipation	3.3 BTU/hr maximum
Isolation Voltage	50V ac rms No isolation between individual channels
Dielectric Test	1000V rms flash for 1s
External dc Power	No external supply required
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) shielded solid or stranded copper wire rated @ 75°C or greater 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	0 - Input + 1 - Input + 2 - Input - 3 - Input - 4 - Return 5 - Return 6 - Shield 7 - Shield
Mass	1.22 oz/34.6 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Thermocouple Input Module

Specifications - 1734-IT2I 2 Thermocouple Input Analog Module	
Input Specifications	
Number of Inputs	2 differential, individually isolated
Resolution (also see Thermocouple Type below)	15 bits plus sign 2.5µV/cnt
Thermocouple Type (and resolution average over span)	Sensor Range Resolution (Average Over Span) Type B 30 to 1820°C 3 counts/°C Type C 0 to 2315°C 6 counts/°C Type E -270 to 1000°C 24 counts/°C Type J -210 to 1200°C 21 counts/°C Type K -270 to 1372°C 13 counts/°C Type N -270 to 1300°C 11 counts/°C Type R -50 to 1768.1°C 4 counts/°C Type S -50 to 1768.1°C 4 counts/°C Type T -270 to 400°C 15 counts/°C
Cold Junction Compensation	Included in 1734-RTBCJC remote termination block
Cold Junction Compensation Range	0 to 70°
Resolution	15 bits plus sign 2.5µV/cnt
Input Voltage	±75mV
Absolute Accuracy[1]	0.1% Full Scale @ 25°C
Accuracy Drift w/Temp.	30ppm/°C
Input Update Rate (per module)	20ms @ Notch = 50Hz 17ms @ Notch = 60Hz (default) 10ms @ Notch = 100Hz 8ms @ Notch = 120Hz 5ms @ Notch = 200Hz 4ms @ Notch = 240Hz 3ms @ Notch = 300Hz 3ms @ Notch = 400Hz 2ms @ Notch = 480Hz
Step Response (per channel)	60ms @ Notch = 50Hz 50ms @ Notch = 60Hz 30ms @ Notch = 100Hz 25ms @ Notch = 120Hz 15ms @ Notch = 200Hz 13ms @ Notch = 240Hz 10ms @ Notch = 300Hz 8ms @ Notch = 400Hz 6ms @ Notch = 480Hz
Input Impedance	100KΩ
Input Resistance	1MΩ
Conversion Type	Delta Sigma
Common Mode Rejection Ratio	120dB
Specifications continued on next page	

Normal Mode Rejection Ratio	-60dB -3db Notch filter 13.1Hz @ Notch = 50Hz 15.7Hz @ Notch = 60Hz 26.2Hz @ Notch = 100Hz 31.4Hz @ Notch = 120Hz 52.4Hz @ Notch = 200Hz 62.9Hz @ Notch = 240Hz 78.6Hz @ Notch = 300Hz 104.8Hz @ Notch = 400Hz 125.7Hz @ Notch = 380Hz
Data Format	Signed integer
Maximum Overload	Input not overvoltage protected
Calibration	Factory calibrated
Indicators	1 green/red module status indicator, logic side 1 green/red network status indicator, logic side 2 green/red input status indicators, logic side
Keyswitch Position	6
General Specifications	
Module Location	1734-TBCJC wiring base assembly
Pointbus Current	175mA @ 5V dc
Power Dissipation	1.0W maximum
Thermal Dissipation	3.3 BTU/hr maximum
Isolation Voltage	50V ac rms Isolation between individual channels
Dielectric Test	1000V rms flash for 1s
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56H x 12W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity ShockOperating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) shielded thermocouple wire 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	3 - Shield 6 - Input 0+ (High) 4 - Input 0- (Low) 7 - Input 1+ (High) 5 - Input 1- (Low)
Mass	1.22 oz/34.6 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Includes offset, gain, non-linearity and repeatability error terms.
2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

5V Very High Speed Counter Module

Specifications - 1734-VHSC5/B Very High Speed Counter Module	
Input Specifications	
Number of Inputs	1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn
Input Voltage	5V dc
Input Current	19.1mA @ 5V dc 25.7mA @ 6V dc
Input OFF-State Current	≤0.250mA max
Input OFF-State Voltage	≤1.25V dc)
Input ON-State Current	≥5mA
Input ON-State Voltage	≥2.6V dc
Maximum ON-State Voltage	±6V
Input Filter Selections	Off 10µs 100µs 1.0ms 10.0ms
Maximum Input Frequency	1.0MHz counter and encoder X1 configurations 500kHz encoder X2 configuration (no filter) 250kHz encoder X4 configuration (no filter)
Output Specifications	
Number of Outputs	1 isolated group of 2 capable of 0.5A @ 24V dc
Output Control	Outputs can be tied to any of 4 compare windows
Output Supply Voltage Range	10-28.8V dc
OFF-State Leakage Current	≤0.5mA
ON-State Voltage Drop	≤0.3V dc @ 0.5A
ON-State Current	0.5A maximum
Short Circuit Current	6A - Outputs are short circuit protected and either cycle until the fault is corrected, or latch off (depending upon programming) Short circuit detected when output is turned on.
Open Wire Detection	Open wire detected when output is turned off
Delay Time OFF to ON ON to OFF	 25µs (load dependent) 150µs (load dependent)
General Specifications	
Module Location	1734-TB, -TBS, -TB3, -TB3S wiring base assembly
Keyswitch Position	2
Pointbus Current	180mA maximum
Power Dissipation	1.5W maximum @ rated load
Thermal Dissipation	5.1 BTU/hr maximum @ rated load
Isolation Voltage (minimum)	Prequalified at 1250V ac/rms between: **Module 1** System side Chassis ground A/B/Z inputs O0/O1 and user power supply **Module 2** System side Chassis ground Vaux ± User power supply common

External dc Power (does not represent power required for outputs)	No additional external power required to power module.
Field Power Bus	24V dc nominal; range 10-28.8V dc
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	Module 1 0 - A 1 - A_{ret} 2 - B 3 - B_{ret} 4 - Z 5 - Z_{ret} 6 - Output 0 7 - Output 1 Module 2 0 - Chassis ground 1 - Chassis ground 2 - Return 0 3 - Return 1 4 - -V 5 - -V 6 - +V 7 - +V
Mass	1.15 oz/32.60 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.
User Manual	Publication 1734-UM006❒-EN-P

1 Off/on delay is time from a valid output "on" signal to output energization. On/off delay is time from a valid output "off" signal to output deenergization.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

24V Very High Speed Counter Module

Specifications - 1734-VHSC24/B Very High Speed Counter Module	
Input Specifications	
Number of Inputs	1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn
Input Voltage	15-24V dc
Input Current	6.1mA @ 15V dc 10.2mA @ 24V dc
Input OFF-State Current	≤0.250mA max
Input OFF-State Voltage	≤1.8V dc
Input ON-State Current	≥5mA
Input ON-State Voltage	≥12.5V dc
Maximum ON-State Voltage	Refer to derating curve below.
Input Filter Selections	Off 10µs 100µs 1.0ms 10.0ms
Maximum Input Frequency	1.0MHz counter and encoder X1 configurations 500kHz encoder X2 configuration (no filter) 250kHz encoder X4 configuration (no filter)
Output Specifications	
Number of Outputs	1 isolated group of 2 capable of 0.5A @ 24V dc
Output Control	Outputs can be tied to any of 4 compare windows
Output Supply Voltage Range	10-28.8V dc
OFF-State Leakage Current	≤0.5mA
ON-State Voltage Drop	≤0.3V dc @ 0.5A
ON-State Current	0.5A maximum
Short Circuit Current	6A - Outputs are short circuit protected and either cycle until the fault is corrected, or latch off (depending upon programming) Short circuit detected when output is turned on.
Open Wire Detection	Open wire detected when output is turned off
Delay Time OFF to ON ON to OFF	 25µs (load dependent) 150µs (load dependent)
General Specifications	
Module Location	1734-TB, -TBS, -TB3, -TB3S wiring base assembly
Keyswitch Position	2
Pointbus Current	180mA maximum
Power Dissipation	1.9W maximum @ rated load
Thermal Dissipation	6.5 BTU/hr maximum @ rated load
Isolation Voltage (minimum)	Prequalified for 1250V ac/rms between: **Module 1** System side (PointBus) Chassis ground A/B/Z inputs O0/O1 and user power supply **Module 2** System side Chassis ground Vaux ± User power supply common

External dc Power (does not represent power required to supply outputs)	No additional external power required to power module
Field Power Bus	24V dc nominal; range 10-28.8V dc
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	Module 1 0 - A 1 - A_{ret} 2 - B 3 - B_{ret} 4 - Z 5 - Z_{ret} 6 - Output 0 7 - Output 1 Module 2 0 - Chassis ground 1 - Chassis ground 2 - Return 0 3 - Return 1 4 - -V 5 - -V 6 - +V 7 - +V
Mass	1.15 oz/32.60 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.
User Manual	Publication 1734-UM003❒-EN-P

1 Off/on delay is time from a valid output "on" signal to output energization. On/off delay is time from a valid output "off" signal to output deenergization.

2 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

5V Encoder/Counter Module

Specifications - 1734-IJ/B Encoder/Counter Module	
Input Specifications	
Number of Inputs	1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn
Input Voltage	5V
Input Current	19.1mA @ 5V dc 25.7mA @ 6V dc
Input OFF-State Current	≤0.250mA max
Input OFF-State Voltage	≤1.25V dc
Input ON-State Current	≥5mA
Input ON-State Voltage	≥2.6V dc
Maximum ON-State Voltage	±6V
Input Filter Selections (per A/B/Z group)	Off 10µs 100µs 1.0ms 10.0ms
Maximum Input Frequency	1.0MHz counter and encoder X1 configurations 500kHz encoder X2 configuration (no filter) 250kHz encoder X4 configuration (no filter)
General Specifications	
Module Location	1734-TB, -TBS, -TB3, -TB3S wiring base assembly
Keyswitch Position	2
Pointbus Current	160mA maximum
Power Dissipation	1.1W maximum @ rated load
Thermal Dissipation	3.75 BTU/hr maximum @ rated load
Isolation Voltage (minimum)	Prequalified at 1250V ac/rms between: System side Chassis ground A/B/Z inputs
External dc Power	No additional external power required to power module.
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	Module 1 0 - A 1 - A_{ret} 2 - B 3 - B_{ret} 4 - Z 5 - Z_{ret} 6 - Chassis ground 7 - Chassis ground
Mass	1.15 oz/32.60 grams

Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.
User Manual	Publication 1734-UM006❒-EN-P

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

24V Encoder/Counter Module

Specifications - 1734-IK/B Encoder/Counter Module	
Input Specifications	
Number of Inputs	1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn
Input Voltage	15-24V dc
Input Current	6.1mA @ 15V dc 10.2mA @ 24V dc
Input OFF-State Current	≤0.250mA max
Input OFF-State Voltage	≤1.8V dc
Input ON-State Current	≥5mA
Input ON-State Voltage	≥12.5V dc
Maximum ON-State Voltage	Refer to Input Derating Curve below
Input Filter Selections (per A/B/Z group)	Off 10µs 100µs 1.0ms 10.0ms
Maximum Input Frequency	1.0MHz counter and encoder X1 configurations 500kHz encoder X2 configuration (no filter) 250kHz encoder X4 configuration (no filter)
General Specifications	
Module Location	1734-TB, -TBS, -TB3, -TB3S wiring base assembly
Keyswitch Position	2
Pointbus Current	160mA maximum
Power Dissipation	1.5W maximum @ rated load
Thermal Dissipation	5.1 BTU/hr maximum @ rated load
Isolation Voltage (minimum)	Prequalified at 1250V ac/rms between: System side Chassis ground A/B/Z inputs
External dc Power	No additional external power required to power module.
Dimensions Inches (Millimeters)	2.21H x 0.47W x 2.97L (56.0H x 12.0W x 75.5L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to 55°C (-4 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2[2]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations	Module 1 0 - A 1 - Aret 2 - B 3 - Bret 4 - Z 5 - Zret 6 - Chassis ground 7 - Chassis ground
Mass	1.15 oz/32.60 grams

Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.
User Manual	Publication 1734-UM006❒-EN-P

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines.".

POINTBlock I/O

dc 8 Input/8 Output Module

Specifications - 1734D-IB8XOB8E, -IB8XOB8ES	
Input Specifications - IEC 3 24V dc Input Compliant	
ON-State Voltage Range	10V dc min 24V dc nominal 28.8V dc max
ON-State Current	2.5mA min 6.3mA nominal @ 24V dc 7.6mA max
OFF-State Voltage	5V dc max
OFF-State Current	1.5mA min
Input Impedance	4.7K Ω max (3.6K Ω nominal
Input Filter Time OFF to ON ON to OFF	 0.5ms hardware + (0 - 65ms selectable) 0.5ms hardware + (0 - 65ms selectable)
Output Specifications	
ON-State Voltage Range	10V dc min 24V dc nominal 28.8V dc max
ON-State Voltage Drop	0.2V max @ 0.75A
ON-State Current	0.7A max (electronically protected)
OFF-State Voltage	1.5V dc max
General Specifications	
Pointbus Output Current	1A max @ 5V dc output power
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum at expansion port
Isolation Voltage	Tested to 1250Vrms or 2121V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 I/O status indicators (8 yellow input/8 yellow/red output)
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to +55°C (-4 to +131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded max 3/64 inch (1.2mm) insulation max 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6 Nm)

Specifications continued on next page.

Field Wiring Terminations DeviceNet	1 - Black Wire 2 - Blue Wire 3 - Bare Wire 4 - White Wire 5 - Red Wire	-V CAN Low Drain CAN High +V
Field Power Supply	0 - No Connection 2 - No Connection 4 - Common 6 - Supply	1 - No Connection 3 - No Connection 5 - Common 7 - Supply
Mass	12.02 oz/340.77 grams	
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.	

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

dc 8 Input/8 Relay Output Module

Specifications - 1734D-IB8X0W8, -IB8X0W8S	
Input Specifications - IEC 3 24V dc Input Compliant	
ON-State Voltage Range	10V dc min 24V dc nominal 28.8V dc max
ON-State Current	2.5mA min 6.3mA nominal @ 24V dc 7.6mA max
OFF-State Voltage	5V dc max
OFF-State Current	1.5mA min
Input Impedance	5.3K Ω max
Input Filter Time OFF to ON ON to OFF	 0.5ms hardware + (0 - 65ms selectable) 0.5ms hardware + (0 - 65ms selectable)
Output Specifications	
Relay Type	Form A, normally open (N.O.) Single Pole, Single Throw (SPST)
Output Voltage Range (load dependent)	5-28.8V dc @ 2.0A resistive 48V dc @ 0.5A resistive 125V dc @ 0.25A resistive 125V ac @ 2.0A resistive 240V ac @ 2.0A resistive
Output Current Rating (at rated power)	Resistive 2A @ 5-28.8V dc 0.5A @ 48V dc 0.25A @ 125V dc 2A @ 125V ac 2A @ 240V ac Inductive 2.0A steady state @ 5-28.8V dc, L/R = 7ms 0.5A steady state @ 48V dc, L/R = 7ms 0.25A steady state @ 125V dc, L/R = 7ms 2.0A steady state, 15A make @ 125V ac, PF = cos θ = 0.4 2.0A steady state, 15A make @ 240V ac, PF = cos θ = 0.4
Power Rating	250W max for 125V ac resistive loads 480W max for 240V ac resistive loads 60W max for 28.8V dc resistive loads 24W max for 48V dc resistive loads 31W max for 125V dc resistive loads 250VA max for 125V ac inductive loads 480VA max for 240V ac inductive loads 60VA max for 28.8V dc inductive loads 24VA max for 48V dc inductive loads 31VA max for 125V dc inductive loads
Minimum Load	10mA per point
Initial Contact Res.	30mΩ
Switching Frequency	1 operation/3s at rated load
Bounce Time	1.2ms average
Expected Contact Life	300K cycles resistive; 100K cycles inductive
Maximum OFF-State Leakage	1.5mA max
Output Delay Time	10ms max ON/OFF
Specifications continued on next page.	

General Specifications	
Pointbus Output Current	1A max @ 5V dc output
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum at expansion port
Isolation Voltage	Tested to 1250Vrms or 2121V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 yellow I/O status indicators (8 input/8 relay output)
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to +55°C (-4 to +131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm^2) - 22 AWG (0.25mm^2) solid or stranded max 3/64 inch (1.2mm) insulation max 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6Nm)
Field Wiring Terminations DeviceNet Field Power Supply	 1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Drain 4 - White Wire CAN High 5 - Red Wire +V 0 - No Connection 1 - No Connection 2 - No Connection 3 - No Connection 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	13.82 oz/391.80 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

ac 8 Input/8 Output Module

Specifications - 1734D-IA8XOA8, -IA8XOA8S	
Input Specifications	
ON-State Voltage	65V ac min
ON-State Current	5.0mA min
OFF-State Voltage	43V ac max
OFF-State Current	2.5mA max
Nominal Input Impedance	17.0kΩ
Input Delay Time OFF to ON ON to OFF	 20.0ms hardware + (0 - 65ms selectable) 20.0ms hardware + (0 - 65ms selectable)
External AC Power Supply Voltage	120V ac, 60Hz nominal
External AC Power Supply Voltage Range	85-132V ac, 47-63Hz
Output Specifications	
Maximum ON-State Voltage Drop	1.2V @ 0.5A
ON-State Current	10mA per output min
ON-State Current	500mA per output max @ 55°C (sufficient to operate an A-B Bulletin 500 NEMA size 3 motor starter) 750mA per output max @ 40°C 1A per output max @ 30°C
OFF-State Leakage	2.25mA max
Output Voltage Range	85-132V ac, 47-63Hz
Output Current Rating	6A per module (6 channels @ 1A each max)
Delay Time OFF to ON ON to OFF	 1ms max ½ cycle max
External AC Power Supply Voltage	120V ac, 60Hz nominal
External AC Power Supply Voltage Range	85-132V ac, 47-63Hz
General Specifications	
Pointbus Output Current	1A max @ 5V dc output
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum added at expansion port
Isolation Voltage	Tested to 1250Vrms or 2121V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 yellow I/O status indicators (8 input/8 output)
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)

Specifications continued on next page.

Environmental Conditions	
Operational Temperature	-20 to +55°C (-4 to +131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	30g peak acceleration, 11(±1)ms pulse width
Non-operating	50g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded max 3/64 inch (1.2mm) insulation max
Category	2[1]
Terminal Base Screw Torque	7 pound-inches (0.6 Nm)
Field Wiring Terminations	
DeviceNet	1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Drain 4 - White Wire CAN High 5 - Red Wire +V
Field Power Supply	0 - No Connection 1 - No Connection 2 - No Connection 3 - No Connection 4 - AC return 5 - AC return 6 - AC power 7 - AC power
Mass	13.88 oz/393.50 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

ac 8 Input/8 Relay Output Module

Specifications - 1734D-IA8X0W8, -IA8X0W8S	
Input Specifications	
ON-State Voltage	65V ac min
ON-State Current	5.0mA min
OFF-State Voltage	43V ac max
OFF-State Current	2.5mA max
Nominal Input Impedance	17.0kΩ
Input Delay Time OFF to ON ON to OFF	 20ms hardware + (0-65ms selectable) 20ms hardware + (0-65ms selectable)
External AC Power Supply Voltage	120V ac, 60Hz nominal
External AC Power Supply Voltage Range	85-132V ac, 47-63Hz
Output Specifications	
Relay Type	Form A, normally open (N.O.) Single Pole, Single Throw (SPST)
Output Voltage Range (load dependent)	5-30V dc @ 2.0A resistive 48V dc @ 0.5A resistive 125V dc @ 0.25A resistive 125V ac @ 2.0A resistive 240V ac @ 2.0A resistive
Output Current Rating (at rated power)	Resistive2A @ 5-30V dc 0.5A @ 48V dc 0.25A @ 125V dc 2A @ 125V ac 2A @ 240V ac Inductive 2.0A steady state @ 5-30V dc, L/R = 7ms 0.5A steady state @ 48V dc, L/R = 7ms 0.25A steady state @ 125V dc, L/R = 7ms 2.0A steady state, 15A make @ 125V ac, PF = cos θ = 0.4 2.0A steady state, 15A make @ 240V ac, PF = cos θ = 0.4
Power Rating	250W max for 125V ac resistive loads 480W max for 240V ac resistive loads 60W max for 28.8V dc resistive loads 24W max for 48V dc resistive loads 31W max for 125V dc resistive loads 250VA max for 125V ac inductive loads 480VA max for 240V ac inductive loads 60VA max for 28.8V dc inductive loads 24VA max for 48V dc inductive loads 31VA max for 125V dc inductive loads
Minimum Load	10mA per point
Initial Contact Res.	30mΩ
Switching Frequency	1 operation/3s at rated load
Bounce Time	1.2ms average
Expected Contact Life	300K cycles resistive; 100K cycles inductive
Maximum OFF-State Leakage	1.5mA max
Output Delay Time	10ms max ON/OFF
Specifications continued on next page.	

General Specifications	
Pointbus Output Current	1A max @ 5V dc output
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum added at expansion port
Isolation Voltage	1250Vrms or 2121V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 yellow I/O status indicators (8 input/8 output)
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to +55°C (-4 to +131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded max 3/64 inch (1.2mm) insulation max 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6 Nm)
Field Wiring Terminations DeviceNet Field Power Supply	 1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Drain 4 - White Wire CAN High 5 - Red Wire +V 0 - No Connection1 - No Connection 2 - No Connection3 - No Connection 4 - AC return 5 - AC return 6 - AC power 7 - AC power
Mass	13.87 oz/393.41 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

ac 16 Input Module

Specifications - 1734D-IA16, -IA16S	
Input Specifications - IEC 3 120V ac Compliant	
Number of Channels	16 input channels
ON-State Voltage	65V ac minimum, 132V ac maximum
ON-State Current	5.0mA min
OFF-State Voltage	43V ac max
OFF-State Current	2.5mA max
Nominal Input Impedance	17.0kΩ
Input Filter Time OFF to ON ON to OFF	 20.0ms hardware + (0 - 65ms selectable) 20.0ms hardware + (0 - 65ms selectable)
External ac Power Supply Voltage	120V ac, 60Hz nominal
External ac Power Supply Voltage Range	85-132V ac, 47-63Hz
General Specifications	
Pointbus Output Current	1A max @ 5V dc output
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum added at expansion port
Isolation Voltage	Tested to 2104V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 yellow I/O status indicators
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 120V ac nominal 65-132V ac 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to +55°C (-4 to +131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded copper rated @ 75°C or greater 3/64 inch (1.2mm) insulation max 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6 Nm)

Specifications continued on next page.

Field Wiring Terminations DeviceNet	1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Drain 4 - White Wire CAN High 5 - Red Wire +V
Field Power Supply	0 - No Connection 1 - No Connection 2 - No Connection 3 - No Connection 4 - AC return 5 - AC return 6 - AC power 7 - AC power
Mass	13.88 oz/393.50 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

dc 16 Input Module

Specifications - 1734D-IB16, -IB16S	
Input Specifications - IEC 3 24V dc Input Compliant	
Number of Channels	16 input channels
ON-State Voltage Range	10V dc min 24V dc nominal 28.8V dc max
ON-State Current	2.5mA min 6.3mA nominal @ 24V dc 7.6mA max
OFF-State Voltage	5V dc max
OFF-State Current	1.5mA min
Input Impedance	4.7K Ω max (3.6K Ω nominal)
Input Filter Time OFF to ON ON to OFF	 0.5ms hardware + (0 - 65ms selectable) 0.5ms hardware + (0 - 65ms selectable)
General Specifications	
Pointbus Output Current	1A max @ 5V dc output power
DeviceNet Current	95mA maximum for POINTBlock 350mA for maximum with expansion of 12 POINT I/O modules
Number of POINT I/O Expansion Modules	12 maximum at expansion port
Isolation Voltage	Tested to 850V dc for 1s between user power and DeviceNet
Indicators	1 red/ green module status indicator 1 red/green network status indicator 16 yellow I/O status indicators
Power Dissipation	2.0W maximum @ 24V dc
Power Consumption	8.2W maximum @ 24V dc
Field Power Bus Supply Voltage Voltage Range Supply Current	 24V dc nominal 10-28.8V dc 10A max
Dimensions Inches (Millimeters)	3.00H x 2.36W x 5.25L (76.2 Hx 60.0W x 133.4L)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 -20 to +55°C (-4 to +131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing 30g peak acceleration, 11(±1)ms pulse width 50g peak acceleration, 11(±1)ms pulse width Tested 5g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size Category	14 AWG (2.5mm²) - 22 AWG (0.25mm²) solid or stranded copper rated @ 75°C or greater 3/64 inch (1.2mm) insulation max 2[1]
Terminal Base Screw Torque	7 pound-inches (0.6 Nm)
Specifications continued on next page.	

Field Wiring Terminations DeviceNet	1 - Black Wire -V 2 - Blue Wire CAN Low 3 - Bare Wire Drain 4 - White Wire CAN High 5 - Red Wire +V
Field Power Supply	0 - No Connection 1 - No Connection 2 - No Connection 3 - No Connection 4 - Common 5 - Common 6 - Supply 7 - Supply
Mass	12.02 oz/340.77 grams
Agency Certification (when product is marked)	C-UL Listed C-UL Class I, Division 2, Groups A, B, C and D certified UL Listed UL Class I, Division 2, Groups A, B, C and D certified CE marked for all applicable directives. C-Tick marked for all applicable acts. DeviceNet compatible as certified by ODVA, Inc.

1 Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

Default Data Maps

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory. This appendix lists the default data maps for 1734 POINT I/O and 1734D-POINTBlock modules.

For the default data map of:	See page:
1734-IA2 ac Input Module	B-2
1734-IB2 dc Sink Input Module	B-2
1734-IB4 dc Sink Input Module	B-2
1734-IV2 dc Source Input Module	B-3
1734-IV4 dc Source Input Module	B-3
1734-OA2 120/220V ac Output Module	B-3
1734-OB2E dc Electronically Protected Output Module	B-4
1734-OB4E dc Electronically Protected Output Module	B-4
1734-OW2 Relay Sink/Source Output Module	B-5
1734-IE2C Analog Current Input Module	B-5
1734-IE2V Analog Voltage Input Module	B-6
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1734-IM2 220V ac Input Module	B-8
1734-IR2 RTD Input Module	B-9
1734-IT2I Isolated Thermocouple Input Module	B-9
1734-VHSC 24V dc High Speed Counter Module	B-10
1734-VHSC 5V dc High Speed Counter Module	B-10
1734-IB8XOB8E dc Input/Output POINTBlock Module	B-11
1734-IB8XOW8 Input/Relay Output POINTBlock Module	B-11
1734-IA8XOA8 120V ac Input/Output POINTBlock Module	B-11
1734-IA8XOW8 120V ac Input/Relay Output POINTBlock Module	B-12
1734D-IA16 120V ac Input POINTBlock Module	B-12
1734D-IB16 dc Sink Input POINTBlock Module	B-12

1734-IA2 ac Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

1734-IB2 dc Sink Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = OFF 1 = ON								

1734-IB4 dc Sink Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0 Ch1 = input channel 1 Ch2 = input channel 2 Ch3 = channel 3 0 = OFF 1 = ON								

1734-IV2 dc Source Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0 data Ch1 = input channel 1 data								

1734-IV4 dc Source Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch1	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0 Ch1 = input channel 1 Ch2 = input channel 2 Ch3 = input channel 3								

1734-OA2 120/220V ac Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch 1	Ch 0	Channel state
Where: 0 = Off, 1 = On									

1734-OB2E dc Electronically Protected Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status
Where: 0 = no error 1 = error									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = OFF 1 = ON									

1734-OB4E dc Electronically Protected Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel status
Where: 0 = no error 1 = error									

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = Off 1 = On									

1734-OW2 Relay Sink/Source Output Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = OFF 1 = ON									

1734-IE2C Analog Current Input Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 High Byte								Input Channel 0 Low Byte							
	Input Channel 1 High Byte								Input Channel 1 Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status 0 = no error 1 = fault
CM = Calibration Mode 0 = normal 1 = calibration mode
LA = Low Alarm 0 = no error 1 = fault
HA = High Alarm 0 = no error 1 = fault
LLA = Low/Low Alarm 0 = no error 1 = fault
HHA = High/High Alarm 0 = no error 1 = fault
UN = Underrange 0 = no error 1 = fault
OR = Overrange 0 = no error 1 = fault

1734-IE2V Analog Voltage Input Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault
HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

1734-OE2C Analog Current Output Module

Message size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

Message size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status 0 = no error 1 = fault
CM = Calibration Mode 0 = normal 1 = calibration mode
LCA = Low Clamp Alarm 0 = no error 1 = fault
HCA = High Clamp Alarm 0 = no error 1 = fault

1734-OE2V Analog Voltage Output Module

essage size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

Message size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 1 Status - High Byte								Channel 0 Status - Low Byte							
	Not used				HCA	LCA	CM	ST	Not used				HCA	LCA	CM	ST

Where: ST = Channel Fault Status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault
HCA = High Clamp Alarm; 0 = no error, 1 = fault

1734-IJ 5V dc Encoder/Counter Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 0 value of present counter state (LSW)															
	Channel 0 value of present counter state (MSW)															
	PE	EF	NR	0	0	0	0	0	0	ZS	BS	AS	C1	C0	ZD	0

Where: PE = Programming error
EF = EEPROM fault status
NR = Not ready status bit
ZS = Z input status
BS = B input status
AS = A input status
C = Stored data count
ZD = Zero frequency detected
LSW = Least significant word
MSW= Most significant word

1734-IK 24V dc Encoder/Counter Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 0 value of present counter state (LSW)															
	Channel 0 value of present counter state (MSW)															
	PE	EF	NR	0	0	0	0	0	0	ZS	BS	AS	C1	C0	ZD	0

Where: PE = Programming error
EF = EEPROM fault status
NR = Not ready status bit
ZS = Z input status
BS = B input status
AS = A input status
C = Stored data count
ZD = Zero frequency detected
LSW = Least significant word
MSW = Most significant word

1734-IM2 220V ac Input Module

Message size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (Rx)							Ch 1	Ch 0
Consumes (Tx)	No consumed data							

Where: Ch0 = channel 0, ICh1 = channel 1; 0 = off, 1 = on

1734-IR2 RTD Input Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault
HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

1734-IT2I Isolated Thermocouple Input Module

Message size: 8 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
	OR	UR	Cold Junction Temperature (Selectable: Channel 0, Channel 1, or Average of both Channel 0 and 1)													
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault
HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

1734-VHSC 24V dc High Speed Counter Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 0 value of present counter state (LSW)															
	Channel 0 value of present counter state (MSW)															
	PE	EF	NR	0	FS	FS	OS	OS	0	ZS	BS	AS	C1	C0	ZD	0

Where: PE = Programming error
EF = EEPROM fault status
NR = Not ready status bit
FS = Output fault status bit - bit 10 for output 0, bit 11 for output 1
OS = Output on/off status bit - bit 8 for output 0, bit 9 for output 1
ZS = Z input status
BS = B input status
AS = A input status
C = Stored data count
ZD = Zero frequency detected
LSW = Least significant word
MSW = Most significant word

1734-VHSC 5V dc High Speed Counter Module

Message size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 0 value of present counter state (LSW)															
	Channel 0 value of present counter state (MSW)															
	PE	EF	NR	0	FS	FS	OS	OS	0	ZS	BS	AS	C1	C0	ZD	0

Where: PE = Programming error
EF = EEPROM fault status
NR = Not ready status bit
FS = Output fault status bit - bit 10 for output 0, bit 11 for output 1
OS = Output on/off status bit - bit 8 for output 0, bit 9 for output 1
ZS = Z input status
BS = B input status
AS = A input status
C = Stored data count
ZD = Zero frequency detected
LSW = Least significant word
MSW = Most significant word

POINTBlock Modules

1734-IB8XOB8E dc Input/Output POINTBlock Module

Message Size: Input Size: 1 byte; Output Size: 1 byte

	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Consumes (Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Status
Where: 0 = no error, 1 = error									

1734-IB8XOW8 Input/Relay Output POINTBlock Module

Message size: Input size: 1 byte; Output size: 1 byte

	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = no error, 1 = error									

1734-IA8XOA8 120V ac Input/Output POINTBlock Module

Message size: Input size: 1 Byte; Output size: 1 byte

	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: CH = channel number; 0 = no error, 1 = error									

1734-IA8XOW8 120V ac Input/Relay Output POINTBlock Module

Message size: Input size: 1 byte; Output size: 1 byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = no error, 1 = error									

1734D-IA16 120V ac Input POINTBlock Module

Message size: Output size: 0 bytes; Input size: 1 byte

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0	Channel State
Consumes (Tx)	No consumed data																
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																	

1734D-IB16 dc Sink Input POINTBlock Module

Message size: Output size: 0 bytes; Input size: 2 bytes

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0	Input Data
Consumes (Tx)	No consumed data																
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																	

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